

Originally Processed With FOIA(s):
2005-0336-F

FOIA Number:
2005-0336-F

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Series: Bromley, D. Allan, Files
Subseries: Global Climate Change Files

OA/ID Number: 62052
Folder ID Number: 62052-007

Folder Title:
Global Change: Debt for Nature Swaps [1990]

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Debt Swap: The Concept

Below is outlined very broadly the concept of debt swap. Specifics are omitted. While many variables affect the value of a loan, we herein only look at the fact that an asset's value may change over time. A "devaluation" of the original principal amount of a loan in real terms opens the door for negotiating a debt swap. We also point out a fundamental distinction between a debt equity swap and a debt-for-nature swap. This distinction is essential in understanding debt-for-nature swaps.

A debt swap hinges on two fundamental considerations:

- I) the value of a loan may vary over time depending on a plethora of exogenous variables and
- II) a loan is a legal contract between lender and borrower: both have rights and obligations under a loan agreement. It is clear, however, that the borrower has an obligation to repay to the lender the face amount of the loan under the original terms unless both parties agree to an alternative method to satisfy the obligation.

Example

- 1) Lender extends US\$ 100.00 loan to borrower.
- 2) Borrower gives lender I.O.U. which states that borrower owes lender US\$ 100.00 at a specified time in the future in accordance with certain agreed upon terms and conditions.
- 3) The value of that original loan is US\$ 100.00 on date loan made.

Concepts

- A) The value of a loan is a function of its collectibility. At the time a loan is made, the lender expects to receive US\$ 100.00 back. Therefore, the value of that asset on disbursement day (day 1) is US\$ 100.00
- B) If the lender determines, for whatever reason, that the borrower is unable to repay the full amount of the original loan, then the real value of the asset falls, since the loan is perceived to be less than fully collectible under the original terms and conditions. The resulting discount on the loan is the difference between the original expectation of collectibility (US\$ 100.00) on day 1 and the current expectation of less than full collectibility. This "devaluation" occurs because of a deterioration of a borrower's financial condition, its inability to access foreign exchange, etc..
- C) Regardless of the creditor's perception of collectibility on

the loan, the borrower still contractually owes the lender US\$ 100.00.

- D) The lender, recognizing the borrower's inability to repay US\$ 100.00, may indicate to the borrower that he is willing to accept something other than US\$ 100.00 from the borrower. A swap, therefore, is the acceptance by the lender of an asset other than the original US\$ 100.00 (for example, local currency).
- E) Specifically, if the loan in our example is trading at a 50% discount, the chances of collecting the full US\$ 100.00 are only one in two. Given this expectation, the original holder of the loan decides to sell it for US\$ 50.00. (Better to get at least US\$ 50.00 now than potentially receive even less in the future.) Once the loan is sold for US\$ 50.00 to a third party, a transfer of title occurs. The new holder of the debt note exchanges the US\$ 100.00 note which it purchased for US\$ 50.00 for local currency. The local currency received from the Central Bank for the note exceeds the amount of local currency that US\$ 50.00 would have otherwise purchased at the Central Bank foreign exchange window if the debt swap did not occur. This multiplier effect is one important reason why debt swap is attractive.

Debt Swap: Debt-Equity vs. Debt-for-Nature

Conceptually, a debt-equity swap is very similar to a debt-for-nature swap: in both cases, a dollar obligation is cancelled with local currency. The fundamental difference between the swaps stems from the control and disposition of funds once a swap has been executed. In a debt equity swap, a creditor bank becomes a partial or whole owner in a local business concern. There is an actual transfer of ownership from local to foreign control. Because of this, the charge is sometimes made that the local government has "sold out" to foreign interests.

The point is that a debt equity swap must be distinguished from a debt-for-nature swap since A debt-for-nature nature swap does not result in a transfer of land ownership nor is such a transfer even contemplated. Any land set aside for conservation purposes in a debt-for-nature transaction remains under the direct control of the debtor country. In short, a debt-for-nature swap is a specific means by which a country, through a local organization, either public or private, can protect its ecosystem and natural resources in a manner consistent with sustainable development while reducing its debt burden and maintaining direct control of the land.



FACTS

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U.S. DEBT-FOR-NATURE SWAPS TO DATE

(As of March 31, 1990)

DATE	COUNTRY	PURCHASER	COST	FACE VALUE OF DEBT	*CONSERVATION BONDS GENERATED
3/90	Costa Rica	Sweden/WWF/TNC	\$1,998,000	\$10,800,000	\$9,720,000
3/90	Dominican Republic	PRCT	\$116,400	\$582,000	\$582,000
8/89	Zambia	WWF	\$454,000	\$2,270,000	\$2,270,000
7/89	Madagascar	WWF/AID	\$950,000	\$2,100,000	\$2,100,000
→ 4/89	Ecuador	WWF/TNC/MBG	\$1,068,750	\$9,000,000	\$9,000,000
1/89	Costa Rica	TNC	\$784,000	\$5,600,000	\$1,680,000
1/89	Philippines	WWF	\$200,000	\$390,000	\$390,000
2/88	Costa Rica	NPF	\$891,000	\$5,400,000	\$4,050,000
12/87	Ecuador	WWF	\$354,000	\$1,000,000	\$1,000,000
8/87	Bolivia	CI	\$100,000	\$650,000	\$250,000

6,916,150 37,792,000 31,042,000

TNC = The Nature Conservancy
 WWF = World Wildlife Fund
 PRCT = Puerto Rican Conservation Trust
 MBG = Missouri Botanical Garden
 NPF = National Parks Foundation of Costa Rica
 CI = Conservation International
 AID = U.S. Agency for International Development

* NOTE: Does not include interest earned over life of the bonds.

- 1) Average purchase price = 18.83%
- 2) Average redemption rate = 82.14%
- 3) Average multiplier = 5.44x

Per...

DEBT-FOR-NATURE SWAPS: DEBT RELIEF AND BIOSPHERE PRESERVATION?

Stephen VanR. Winthrop

Crushing debt obligations and a rapidly deteriorating natural environment are two of the most serious problems confronting many less developed nations (LDCs) today. An innovative attempt to "kill two birds with one stone" — to alleviate both of these problems simultaneously — emerged in 1987 in the form of the "debt-for-nature swap." This technique is intended to relieve the relentless pressure on LDC central banks to drain precious foreign exchange by reducing part of the debt obligation (the commercial banks absorb some losses), and allowing debt payments in local currency instead of U.S. dollars. It also seeks to provide local conservation organizations with vital funds for the purchase of lands to be converted into national parks and for the establishment of endowments for research, maintenance, and protection of the parks.

The Debt Problem

The magnitude and complexity of the global debt problem preclude a monolithic solution and have forced the international financial community to scramble for innovative ideas. In Peru some debt was retired by a lending bank in a barter exchange for iron ore and coffee.¹ Another more broadly applicable solution is the "debt-equity swap." While actually

1. See *Latin American Weekly Report*, No. 87-88 (November 1, 1987), 7.

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SAIS Review
Summer/Fall 1989

a somewhat misleading term when also used to describe exchanges of debt for cash, bonds, and even other debt, the debt-equity swap evolved out of one of the principal laws of economics: "markets work." In essence, swaps allow a foreign investor to purchase local currency at a discount, which in turn is used to acquire equity in a local business.

Most banks have been highly secretive about the swap programs in which they have engaged. All banks and other businesses deal with "bad debt" in two stages. First they estimate how much of the debt on their books will not be collected, establishing a loan loss reserve. At some later date, the institutions will then decide to write off particular pieces of uncollectable debt (this happens when the debt is sold at a discount or deemed uncollectible). Prior to 1986, Generally Accepted Accounting Procedures (GAAP) required that all similar loans (that is, other loans to the same country) be readjusted to market value after one piece of debt was used in a debt swap or sale. This is significant because banks might be forced to write off too much debt, too quickly. Even after accounting standards were changed, allowing other debt to stay in the bank's books at differing levels of discount, banks remained secretive about the swaps because they feared their bargaining power with other debtors would be undermined if the specifics of the swaps were known.² Estimates are that the debt swap market is small but growing: about \$1 billion (face value) in 1984, \$3 billion in 1985, and \$6-7 billion in 1986; although no data are available for 1987, it appears as if this trend may be decelerating.³

Debt-equity swaps were engineered to perform the same function as a debt restructuring in a corporate bankruptcy proceeding: to reduce the burden of future debt payments by distributing some of the company's equity to its creditors. Some bankers intoned that Latin American countries had acquired too much debt in the 1970s and not enough direct investment, and that debt-equity swaps corrected that imbalance. Whether or not this argument is valid, it must be stressed that debt-equity swaps, like corporate restructurings, are *not* purely debt relief, but rather (at least in part) debt conversion. All obligations are not being removed; instead, some are merely being given a new identity. A flow of interest payments is being replaced by an anticipated flow of (repatriatable) dividend payments. This key point resurrects the ugly specter of neocolonialism: foreign-owned companies (so dependency theory states) drain the resource-rich, capital-poor LDC and ensure the perpetuation of a cycle

2. See Financial Accounting Standards Board, *Accounting Standards* (New York: McGraw Hill, 1986), 11589, 11825.

3. Richard Weinert, "Swapping Third World Debt," *Foreign Policy*, no. 65 (Winter 1986): 85-97.

of dependency.⁴ This helps explain some of the local resistance to debt-equity swap programs and is discussed in more detail below.

Environmental Degradation

Just as world debt has exploded, the world's environmental problems have increased both in number and in severity. Some observers, like Conservation International's Peter Seligmann, have suggested that the two problems are interrelated: "The global environmental crisis has been accelerated by tremendous economic pressures on the developing world to service its debt. Quick-fix economic solutions, which frequently destroy the natural resource base, are often the response to these debt obligations." Whether or not this connection can be empirically established, the severity of the environmental crisis can not be denied. Intervention by man in the form of air, soil, water, noise, and atmospheric pollution, exhaustion of natural resources through deforestation, overhunting and overfishing, inefficient farming, overpopulation, and other factors are permanently and irreversibly destroying the natural environment. The results of this wanton destruction include desertification, soil erosion, alkalinization, ozone depletion, watershed loss, salinization, and the extinction of flora and fauna faster than species can be catalogued—a rate of extinction "unparalleled even by the extinction of the Pleistocene era." These problems are of epidemic proportions in the tropical regions of the world, which harbor an estimated 60 percent of the world's species on only 6 percent of its land surface.⁵

A growing body of research literature is successfully debunking the notion that human progress and environmental preservation are locked in mortal combat. In *Natural Resources and Economic Development in Central America*, H. Jeffrey Leonard persuasively argues that improved efficiencies in land clearing and land use (using existing knowledge and technologies) could dramatically reduce the exploding demand for productive land in the region by increasing the productivity of existing land.⁶ Leonard and others have complained that international development assistance agencies (including the U.S. Agency for International Development and the World Bank) are at least condoning, and perhaps even encouraging, the myopically destructive policies of many LDCs.

4. See Fernando Cardoso and Enzo Faletto, "Nationalism and Populism: Social and Political Forces of Development in the Phase of Consolidating the Domestic Market," in Peter F. Klaren and Thomas J. Bossert, eds., *Promise of Development: Theories of Change in Latin America*, (Boulder, Colo.: Westview Press, 1986), 149-65.

5. Statement by Peter Seligmann, Executive Director of Conservation International, delivered at the Embassy of Bolivia (July 13, 1987). 1. Provided to the author by Conservation International.

6. H. Jeffrey Leonard, *Natural Resources and Economic Development in Central America: A Regional Economic Profile* (New Brunswick, N.J.: Transaction Books, 1987), 170.

"The rapid physical changes and environmental deterioration occurring throughout Central America," Leonard warns us, "have important long-term economic implications."⁷ Yet the destructive policies of the World Bank and others continue unabated. Pilot programs are already proving that "sustainable development" must replace "slash-and-burn" as the guiding principle behind economic development throughout the Third World.

The Debt-for-Nature Swap

The idea of applying the financial wizardry of debt-equity swaps to the problems of environmental degradation has generally been credited to Thomas E. Lovejoy, formally with the World Wildlife Fund and now at the Smithsonian Institution.⁸ The mechanics of the debt-for-nature swap, as it has come to be known, closely mirror those of a conventional debt-equity swap: an international environmental group (sometimes referred to as an NGO, or non-governmental organization) either buys or is given by the lender a block of deeply discounted Third World debt. This dollar-denominated debt is then taken to the central bank of that country and converted into either local currency or a local-currency denominated bond. The local funds are used either to purchase private- or government-owned lands and convert them into national parks, or to fund environmentally beneficial activities. These activities might include maintaining parks, paying for park rangers or game wardens, educating local populations on proper farming techniques or the dangers of degradation, establishing waste-treatment facilities, and many other possibilities. These activities themselves are nothing new; what the debt-for-nature swap adds is a magnification effect—"more bang for the buck."

The following example illustrates the key features of a debt-for-nature swap. Three variables are important to understand: (1) the discount rate (the difference between "par" and "market" value); (2) the "exchange rate" (how many dollars it takes to buy one unit of local currency); and (3) the maximum amount of local currency usually made available for the swap by the local government. The magnitude of the discount rate, how much of the discount is to be shared with the local government when the swap into local currency is made, and the valuation of the local currency can all contribute to the "magnification effect" in a debt-for-nature swap. Table 1 lists some of the prices being quoted on the secondary market for Latin American debt.

7. *Ibid.*, 113, xx.

8. See Jeff B. Copeland et al., "Buying Debt, Saving Nature," in *Newsweek* (August 31, 1987), 45, and John Walsh, "Bolivia Swaps Debt for Conservation," in *Science*, 237 (August 7, 1987), 597.

Table 1. Comparative Data on Selected Latin American Countries*

Country	GNP ⁹ (\$US billions)	Secondary Market Loan Prices ¹⁰ (US cents/dollar)	Area ¹¹ (sq miles)	Population Density ¹² (per persons sq mile)
Bolivia	3.9	12.00	424,162	15
Brazil	270.1	39.00	3,288,042	44
Chile	14.9	60.50	286,396	43
Colombia	31.3	58.00	439,518	68
Costa Rica	3.8	14.00	19,695	137
Ecuador	10.7	15.00	106,000	91
El Salvador	3.8	NA	13,176	376
Honduras	3.4	22.00	46,600	99
Mexico	121.4	41.00	760,373	107
Paraguay	3.6	NA	157,047	26
Peru	24.5	6.00	482,258	42
Uruguay	5.9	60.00	72,172	42
Venezuela	47.9	39.00	352,143	51

*GNP and population estimates are for 1986; secondary market debt data are offer prices as of January 1989. Data may vary from those discussed in the text due to fluctuations in prices in the secondary market for debt.

The first example of a debt-for-nature swap was unveiled in July 1987, and involved the exchange of \$650,000 in Bolivian debt held by a Swiss bank for a three-part promise by Bolivian President Paz Estenssoro: (1) an existing national park would be enlarged more than tenfold; (2) the park would get more permanent and credible legal protection; and (3) an endowment fund of \$250,000 in local currency would be established to protect and maintain the park.¹³ Conservation International, an organization formed in January 1987 by a dissident group from The Nature Conservancy International, engineered the Bolivian

9. World Bank, *World Debt Tables*, (Washington, D.C.: The World Bank, 1987-88 Edition), II.

10. Merrill Lynch & Co. secondary market for debt quoted in *American Banker*, January 16, 1989, 2.

11. *Goode's World Atlas*, (New York: Rand McNally & Co., 1953), 162.

12. Mid-1986 population estimates are from the Population Reference Bureau, Inc. (Washington, D.C., April 1986).

13. All of the information on the Bolivian swap came from Peter Seligmann and Charles Steele of Conservation International in Washington, D.C. I extend to them my deepest thanks.

deal. The Beni Biological Reserve consists of a 3.7 million acre "buffer zone" encircling a pre-existing 334,000-acre park. The 6,740 square miles feature a landscape of diverse forest formations, open savannah grasslands, and an exceptionally rich diversity of flora and fauna; [the Reserve] supports 13 of Bolivia's 18 endangered animal species, including primates, spotted cats, deer (including the endangered marsh deer), wild boar, river otter, foxes, anteaters and bats, as well as birds, amphibians and reptiles.

The area is also the home of the Chimane Indians, a nomadic tribe that lives by hunting and fishing. The 3.7 million acre buffer zone, although not a fully protected area, "will be managed for 'sustainable development' . . . While there [will] be economic activity with the reserves, some sections [will] be completely protected for wildlife, for hunting by Indians, or for other purposes."¹⁴ Finally, the local currency equivalent of \$250,000 (40 percent funded by the Bolivian government, 60 percent by U.S. AID) was earmarked for a trust fund whose income will be used for management and preservation of the reserve.

The creation of the Beni Biological Reserve in Bolivia was a nearly ideal opportunity for the first debt-for-nature swap. Bolivian debt has been discounted by as much as 90 percent on the secondary market (Conservation International's benefactors purchased the \$650,000 in debt for \$100,000); Bolivian President Paz Estenssoro and his administration enthusiastically supported the plan; and the pressures by developers in northern Bolivia are comparatively much less strong than in most of the rest of Latin America (Table 1 also shows that Bolivia has the lowest population density in the region). The exchange was a simple transaction, as the Bolivian government already owned the land, and the \$650,000 obligation was simply discarded in exchange for the three-pronged agreement by Bolivian authorities.

Several slightly more complex debt-for-nature plans have followed Conservation International's Bolivian swap. Two projects in particular involve a \$10 million swap in Ecuador (a partnership between the World Wildlife Fund and the Fundacion Natura, a local group in Ecuador), and a \$5.4 million deal in Costa Rica—both quoted in the face value, not market value of the debt. Peru, Brazil, Paraguay, and Colombia have also considered debt-for-nature plans. However, since these deals involve significantly larger conversions into local currency, Latin American governments have been unwilling to convert directly into local cash because of inflationary concerns. Instead, medium-term (three- to ten-year

14. Philip Shabecoff, "Bolivia to Protect Lands in Swap for Lower Debt," in *The New York Times*, July 14, 1987, C-1.

maturity) local-currency bonds, backed by the local government, have been issued and swapped for the dollar-denominated debt.

The Costa Rican plan has involved a constellation of NGOs, led by The Nature Conservancy, Conservation International, the World Wildlife Fund, and Costa Rica's Fundacion Neotropica.¹⁵ The \$5.4 million, converted into a colon-denominated, five-year, nine-month bond, has been earmarked for several activities throughout Costa Rica, about half going to the purchase of privately owned land in the Guanacaste region of southwestern Costa Rica and converting it into and maintaining it as a national park.¹⁶ The Costa Rican plan is the life project and brainchild of Dr. Daniel H. Jansen, a biologist and professor at the University of Pennsylvania. Largely because of the high population density in Costa Rica (137 inhabitants per square mile, compared to only 15 in Bolivia), pressures of timber poaching are extreme. The percentage of Costa Rica covered by forest and woodland shrank from 51 percent in 1970 to 31-36 percent in 1980; the estimated 15,000 square kilometers remaining are disappearing at a rate of 600 per year.¹⁷ In addition to developmental pressures, the Costa Rican government is requiring that the benefit of the debt's deep discount be shared: roughly a 30 to 70 percent split between the government and the NGOs respectively.¹⁸ Transaction fees are also higher than in the Bolivian case because bank and trustee fees are being levied by the government-owned bank against the bond-generated income. Finally, the Costa Rican swap program differs from Conservation International's Bolivian swap in that its emphasis is upon funding ongoing support services such as park rangers and education campaigns rather than establishing the national parks themselves.

15. The other groups involved are the Association Ecologica La Pacifica, Pew Charitable Fund, The MacArthur Foundation, The J. Noyes Foundation, The Swedish Society for the Conservation of Nature, the W. Alton Jones Foundation, and the Organization for Tropical Studies. The funds will go to: Parque Nacional Braulio Carrillo, Proyecto Parque Nacional Guanacaste, Centro Ecologica La Pacifica, Liga do Conservacion do Monteverde, Biosphere Reserve La Amistad, Parque Nacional La Amistad, Organization for Tropical Studies, and the Project for Development of Protected Areas of the National Parks Foundation. Source: February 9, 1988 Press Release by the Costa Rican National Parks Foundation (a private sector conservation group) and the Costa Rican Ministry of Natural Resources, Energy and Mines.

16. All of my information on the Costa Rica plan came from The Nature Conservancy International, and great thanks are extended to Randall Curtis and Alan Randall at TNC.

17. Leonard, "Natural Resources and Economic Development in Central America: A Regional Economic Profile," 117-25.

18. The government will convert only 75 percent of the face value into locally denominated instruments, and Costa Rican debt is selling at 20 percent of face value on the secondary market. Therefore the Costa Rican government gets 25/80ths (31.25 percent) of the benefit of the discount, and the rest (55/80ths, or 68.75 percent) goes to the NGOs.

Obstacles to Success

Although debt-for-nature swaps are similar to debt-equity swaps in many ways, significant differences exist: key players, tax and regulatory implications, local political reactions, implementation schemes, and even the underlying goals tend to vary. No comprehensive study has yet appeared that looks at the full range of issues confronting debt-for-nature swaps and evaluates their overall effectiveness. In the broader context of all debt swaps, will more or less debt be available on the secondary market, and at what prices?

Throw the Bums Out

After the initial euphoria surrounding debt-equity swaps receded, political leaders in some debtor countries at first expressed caution and later concern. Whether it is called xenophobia or nationalism, protectionism or industrial policy, shortsightedness or warranted concern about neocolonialism, over the last fifty years LDC leaders have consistently constrained foreign ownership of the means of production, particularly when natural resources were involved. The debt-equity swap has resurrected this old issue, and it is no coincidence that its champion in Latin America is the standard bearer of open-market economics: Chile. Yet Chile is also under near-dictatorial rule. Eduardo Amadeo, economic adviser to Argentina's Peronist party, contends that aggressive debt conversion is possible in countries only where "ballot boxes are filled with votes before the election."¹⁹ In other words, he fears that those most likely to benefit from swap programs are wealthy foreigners and a few of the most wealthy local investors.

Although a debt-for-nature swap, almost by definition, does not call for foreign ownership of local assets (in this case, land), nationalism is still a relevant issue. As one observer put it, "How would you [the United States] like it if the Japanese used your trade deficit to buy the Grand Canyon?" Clearly, the analogy is flawed in several respects: Debt-for-nature swaps do not lead to foreign ownership of national parks (control, maybe . . .). Furthermore, the swaps are typically prompted by local officials and/or foreign NGOs, not by blackmailing creditors. A more accurate analogy might be, "How would you like the Japanese to recycle part of the their trade surplus as a Sierra Club-run project to reclaim land ruined by strip mining?"²⁰

19. As reported by Peter Truell, "Chile Pushes Debt-Conversion Program," *Wall Street Journal*, December 9, 1987, 34.

20. See Patti Petesch and Sheldon Annis, "'Debt-for-Development' Plan Is No Gift for Third World," in *The Los Angeles Times* (December 9, 1987), Part II, 7.

Nevertheless, a valid aspect of this argument pertains to paternalism: "Who are these foreigners to think they know better than we do how to manage natural resources?" In the Bolivian swap, nothing was stopping the Bolivian government from buying back the debt themselves. In fact, its later commitment of \$100,000 in local currency to support and administer the Beni Reserve matched the \$100,000 cost of the debt; all it stood to gain was the preservation of foreign exchange reserves. After providing Conservation International with the full \$100,000 for the Bolivian swap, the beneficence of the Frank Weeden Foundation intervened, making everybody feel they came out ahead. Unfortunately, the issue of paternalism remains. The American NGOs are sensitive to this issue and insist upon entering the deals in partnership with local environmental groups and government leaders. Conservation International's charter declares that its "board, staff, and membership [are] composed of nationals of the countries in which it works,"²¹ and other groups such as The Nature Conservancy also emphasize the importance of working in concert with local groups and individuals.

Even if local people are consulted, their latent resentment of paternalism may persist as long as their perceived utility of national parks is less than the parks' utility to philanthropists and NGOs from the United States. Any resentment is probably more than offset by puzzled amusement over how millions of U.S. dollars are being spent on nature reserves outside of the United States, while simultaneously debt is declining and valuable foreign exchange is being preserved. If the government can share in the spoils of cashing in the debt at a steep discount, so much the better. Although paternalism may not be an important issue now, any disparity in perceived utilities may sow the seeds of future discontent. Education campaigns are one obvious way to narrow the gap in perceived costs and benefits.

Lost or Empty Promises

A sensitive but necessary question that must be raised about a debt-for-nature swap is whether the host country will honor and enforce its end of the agreement. This problem can emerge in many different forms. For example, what is stopping future administrations from renegeing on an agreement to preserve a virgin rain forest? The Reagan administration demonstrated how a determined interior secretary could punch enough holes in the regulatory framework to allow wanton oil exploration and extraction in U.S. parklands. Given the frequent changes of governments throughout most of Latin America, the chances of one leader

21. From a promotional brochure for Conservation International.

overriding his predecessor's policies are significant. The NGOs are cognizant of this problem, and a key element of Conservation International's Bolivian swap was to strengthen the language under which the Beni Reserve is protected. In 1982 the old reserve was declared a natural, protected area by administrative decree—a positive move, but one that gave it only a tenuous and nonpermanent status. Under the agreement signed in 1987, President Paz Estenssoro agreed to "encourage" the Bolivian Congress to grant both the Beni Reserve and the vast buffer zone surrounding it Congressional Law Status, the highest legal protection status in Bolivia.

A far more damning criticism of the Bolivian plan is that it may have created a "paper park," or a region properly delineated on maps but not monitored, maintained, or protected by the government. This has been a common problem with parks established in LDCs, but Conservation International was the first to address it head-on.²² As part of the Bolivian agreement, a "trust fund" was established whose income is specifically targeted for administrative, managerial, and protective activities. This \$250,000 fund was endowed by the U.S. AID and the Bolivian government with the local currency equivalent of \$150,000 and \$100,000, respectively.

However, establishing this fund has not completely solved the "paper park" problem. In fact, this has persisted as the most common criticism of the Bolivian swap. One must first ask whether \$250,000 is sufficient to manage properly, on an ongoing basis, an area larger than the states of Connecticut and Rhode Island combined whose inaccessibility—with one seminavigable river and a handful of washed-out dirt roads—helps explain why the area has remained untouched up until now. According to Bolivian environmental activist Javier Lopez, Bolivia already has 26 refuges and parks that exist only on paper and do little to protect wildlife.²³ Even Conservation International's own president, Spencer Beebe, has acknowledged that the estimated \$5 million being spent per year in all of Latin America is probably only 1-2 percent of what is really needed to establish a "reasonable land conservation infrastructure." In the case of the Beni plan, research has clearly been given a higher priority than protection; according to a Conservation International official, the income from the \$250,000 fund is more likely to go to zoological and botanical research than to park patrols or maintenance.²⁴ Furthermore, the reporting arrangements of the Bolivian government to Conservation International are vague and nonbinding, although the agreement

22. Interview with Charles N. Steele, Conservation International, February 9, 1988.

23. See Copeland, "Buying Debt, Saving Nature," 45.

24. Interview with Charles N. Steele, Conservation International, February 9, 1988.

stipulates that Conservation International "will name a national institution as executing entity of its program and/or projects" which will initiate all funding requests.²⁵ In effect, enforcement and protection are abstract budgetary items inadequately provided for in the Conservation International-Bolivian agreement. Although illegal encroachment may not be much of a problem now, how will the Bolivian government protect the Beni Reserve when development pressures increase?

Perhaps the Beni's best protector will be not the government, but the drug traffickers who already control much of the Bolivian countryside. The importance of the Bolivian drug trade raises the broader ancillary question of whether national parks facilitate prohibited activities such as gun running, illegal mining, timber or wildlife poaching, or—in the Bolivian case—the harvesting, processing, and exportation of cocaine. The Beni region is one of the principal cocaine refining regions in Bolivia. Both its geographic proximity to Colombia and its difficult accessibility make the region particularly attractive to the country's *narcotraficantes*. Although some of the trafficking of refined cocaine is now being diverted to the east, through to Brazil instead of to the north, a substantial level of narcotics activity is likely to remain in the Beni region. This begs the somewhat embarrassing question of whether charitable funds in the United States, as well-intentioned as they may be, might be indirectly helping Bolivia's drug trade by reducing commercial pressure (potentially competitive with the cocaine industry) in the Beni region. Certainly narcotics activity on public lands is nothing new; a 1981 "60 Minutes" report documented how Californian parklands were being used extensively by marijuana growers.²⁶

A final problem that could dilute the beneficial impact of a debt-for-nature swap pertains to the hoard of bankers and government officials involved in the complex transactions of the exchange. Remember that the wedge of the discount on the debt is what makes these agreements so attractive. Without the discount, it becomes a simple one-to-one cash transaction. However, an exchange involving discounted debt requires an investment banker to find the debt, facilitate the transaction, and charge a fee. The local government will most likely want a share of the discounted wedge. In the Costa Rican case, 75 percent of the debt's face value was offered, leaving 25 percent to the government. If a bond or trust fund is established, local bankers will receive a management fee. Costa Rican officials have refused to allow competitive bidding for the management of the \$5.4 million Natural Resources Conservation Fund,

25. See Articles 5 and 6, "Agreement Between the Government of Bolivia and Conservation International," July 13, 1987 (document provided by Conservation International).

26. "Sinsemilla: The Report on Seedless Marijuana Grown in Northern California," aired on "60 Minutes" (Columbia Broadcasting Company, Inc.), January 11, 1981.

insisting instead that the Costa Rican Cooperative Bank ("Bancoop") be the trustee and administrator of the project, and receive an annual fee of 2 percent of the fund's principal.²⁷ Finally, there is always the risk of extortion, corruption, or some type of misallocation of funds. Taken together, these real or potential problems can chip away at the original intent of the exchange: to exploit the magnification effect of discounted debt in the interest of protecting fragile natural ecosystems.

Where's the Debt?

With \$1.02 trillion in total external debt worldwide in 1986, \$399 billion of it owed by the nations of Latin America and the Caribbean,²⁸ an ample supply of debt clearly exists. Furthermore experts agree that the debt's chances of being collected are becoming increasingly remote. One estimate suggests that the weighted average of all outstanding Third World debt dropped from 66.9 cents on the dollar in December 1986 to 45.3 cents a year later.²⁹ Most observers foresee no reason for this decline to abate, and none predict a miraculous reversal in this trend; in fact, even the slightest recession in the United States would exacerbate the problem. Although Brazil recently ended its second moratorium on debt interest payments, it is depending heavily upon new loans to help service its debt and to shore up foreign exchange reserves. Argentina almost declared its own debt moratorium in early 1988, saved only by an eleventh-hour agreement engineered by the International Monetary Fund involving further austerity measures and \$1 billion in new debt.

Given this glut of increasingly discounted debt, why then has it been so difficult for NGOs to purchase modest nuggets of highly discounted debt on the secondary market? Interviews with both Conservation International and The Nature Conservancy revealed that finding the debt, *not* raising the funds, was their single greatest obstacle.³⁰ Furthermore locating banks willing to make charitable contributions was seen as being even more difficult than purchasing the debt on the secondary market.

In order to determine why the NGOs are having difficulty finding debt for conversion, the reasons why purchases of debt from the general secondary market have not been more common must be explored. There

27. See "Costa Rican Debt for Nature Agreement," translated and provided to the author by The Nature Conservancy International, January 1988; also, internal memo at The Nature Conservancy International by Alan Randall, November 20, 1987.

28. The World Bank, *World Debt Tables* (Vol I), 2, 18.

29. Shearson Lehman Brothers, Inc., as reported by Andrew Alber, "Mexico Debt Prices Fall in Secondary Market," *Institutional Investor*, December 1987.

30. Interviews with Charles N. Steele, Conservation International, December 21, 1987, and with Randall Curtis, The Nature Conservancy International, January 12, 1988.

are two explanations for why the number of traditional debt-equity swaps has slowed down. First, local governments have been restrictive about which types of equity in local businesses should be made available to foreign investors (local banks are normally either government- or locally-owned in the Third World, and foreign ownership is barred). Most U.S. banks are far more interested in staying in the banking business than in getting into the hotel or shrimp farming business, for example. However, exceptions do exist. In Chile, Bankers Trust owns a power station, and Citicorp owns a gold mine and a fishing fleet.³¹ More often than not, central banks have been the greatest constraint on debt-equity swaps, rejecting plans for political reasons. Often these banks restrict open-market purchases or sales of the debt or securities. Second, even if a central bank and a U.S. commercial bank can agree on swapping into a local shrimp farming venture, more and more frequently the commercial bank is now backing out of the deal because its advisers feel that the best local investment opportunities have already been claimed, and this shrimp farming project may not be profitable enough. Therefore, in spite of the steep discounts available, swapping debt for local equity that is both available and potentially profitable is no longer a simple proposition.

As useful as these observations may be for the debt-equity market, they offer little insight into why NGOs have had difficulty finding debt for debt-for-nature swaps. Three theories have surfaced in attempts to explain this dearth of discounted debt for environmental NGOs. The first pertains to U.S. tax and accounting policies. It has already been noted that prior to 1986, highly secretive U.S. banks were uneasy about trading debt for fear that they would have to write down all similar debt to the market value of the traded debt. After the Securities and Exchange Commission and the Financial Accounting Standards Board removed the regulatory ambiguities, banks still feared that their bargaining position on the other debt would be compromised. Meanwhile several organizations encouraged the Internal Revenue Service to liberalize the tax treatment of charitable contributions of debt instruments. In addition, in November 1987 the U.S. Treasury Department issued Revenue Ruling 87-124, stating that banks could deduct the full face value, not just the market value, if the debt was contributed to a conservation organization.³²

31. Truell, "Chile Pushes Debt Conversion Program," 34.

32. Originally communicated in a June 25, 1987 Private Letter Ruling signed by U.S. Treasury Secretary James Baker, Revenue Ruling 87-124 was issued on November 12, 1987. Source: Randall Curtis, The Nature Conservancy International. There are still some technical differences in the tax treatment of contributed debt (a charitable contribution) and debt sold on the secondary market (a business loss). For more, see Jud Harwood, "Nature Swaps," in *Taxes International*, London, England (Issue 93—unpublished proof), 10.

The first such charitable gift was \$254,358 from Fleet/Norstar Financial Group (a regional bank based in Providence, Rhode Island) to the Costa Rican project in early February 1988.³³ However, some analysts speculate that banks may have already written down their debts to near market value, thereby rendering the new Treasury Department ruling irrelevant and ineffective.³⁴ In any case, if banks ever were reluctant to sell debt on the secondary market for tax reasons, such barriers have at least been reduced.

The two most significant problems confronting NGOs are that Third World debt is normally held in large parcels and by bank consortia. The magnitude of the loans—typically in the tens or hundreds of millions of dollars—places them out of reach of NGOs. Only in extreme cases like Peru, whose debt is selling at about six cents on the dollar, might a large block of debt (perhaps \$50-100 million) be within reach. More typically, however, NGOs are looking to purchase debt with a market value of between \$100,000 and \$500,000; such smaller parcels are harder to find. Debt parcels of this size are more thinly traded, typically held by lesser known regional banks, more likely to have been fully written down removing potential tax benefits, and transactionally are not worth the time of the large investment banks to track down.

Since most Third World debt is not held by a single bank but rather by a consortium of banks, potential buyers need the approval of not one but several banks to execute a single exchange, and the logistics of such a transaction are exponentially more complex as compared with debts involving only one bank. Banks are not just secretive and conservative, explains one author, "the world's big banks had painstakingly forged cooperative links on the debt issue that served all of their interests. For one bank to break ranks and try to dump its debt would have threatened those links and shaken international banking and capital markets."³⁵ Combine this fact with the notion that banks have more experience collecting on bad loans to farmers in Nebraska than on those to Latin American countries, and the resulting caution and conservatism far outweigh any tax or public relations benefits gained from a debt-for-nature swap.

Financial Erosion

A final area of concern with debt-for-nature swaps pertains to the longer-term economic policies of the host government. In particular, two problems predominate: inflation and overvalued currencies. An overvalued

33. John Kostrzewa, "Fleet Debt Deal Preserves Jungle Habitat," in *The Providence Journal-Bulletin*, February 9, 1988. See also Jud Harwood.

34. Interview with Charles N. Steele, Conservation International, February 9, 1988.

35. Weinert, "Swapping Third World Debt," 87.

local currency makes an initial switch into local currency more costly than it would be at a free market exchange rate, and local inflation, which usually outpaces the U.S. rate during the life of a project, makes the exchange rate at which dividends are paid back in dollars unattractive.

In both the Bolivian and Costa Rican swaps, local "endowment funds" were established to fund ongoing maintenance, research, education, or protection activities associated with national parks. The reason why these funds were established at all, rather than simply converting the U.S. dollars into local cash all at once, has been articulated by the World Bank: "Long-term financial instruments in the domestic market are needed to ensure that the conversion into domestic monetary assets does not increase monetary growth above established targets."³⁶ This "increased monetary growth" has a simpler name: inflation. From the viewpoint of the local government, a sudden rush of cash into the economy caused by a debt-for-cash swap has the same inflationary effect as turning on the printing presses. Granted, an infusion of \$250,000 in the Bolivian case, or even \$5.4 million in the Costa Rican case, into the money supply is probably trivial and could easily be neutralized through monetary "sterilization," where the central bank reduces the money supply by the same amount by selling government bonds on the open market. Nevertheless, inflationary concerns will become increasingly significant as the swaps become larger, calling for bonds or endowment funds to be used instead.

Inflation rates in the Third World, and particularly in Latin America, are typically much higher than those in the United States. As a result, interest rates are also higher: In Costa Rica they are about 27.5 percent while those in the United States are less than 10 percent.³⁷ In the case of either the debt instruments or the endowment funds, the interest rate paid at any point in time is pegged to the current rate of inflation, and as inflation goes up or down, so do the interest rates. In the Costa Rican agreement, one analyst has observed that the interest expense in the first year of the colon-denominated endowment fund is more than twice as high as it would have been for the old dollar-denominated debt.

Over time, if local inflation is persistently higher than U.S. inflation and exchange rates are allowed to adjust, the local currency will depreciate. This may lead to some concern that a locally denominated endowment fund created in a debt-for-nature swap will lose value under such conditions. However, this is not necessarily the case. In both the Costa

36. The World Bank, *World Development Report* (Washington, D.C.: World Bank, 1987), 22.

37. Inflation rates of 27.5 percent in Costa Rica and 5 percent in the United States were used in an analysis done by The Nature Conservancy. For continuity's sake, I am using the same figures in my analysis.

Rican and Bolivian cases, no funds will ever be converted back into dollars. Therefore, as long as the interest rate is pegged to the inflation rate, it really does not matter what inflation is or how much the exchange rate changes. Although prices may go through the roof, the yield of the bond or fund will keep pace with inflation, and if exchange rates float, the real cost of both domestic and foreign goods will remain constant.

The prognosis is somewhat different if the local government does not allow the exchange rate to float freely. An overvalued currency can dilute the magnification effect at the time the swap occurs. As the World Bank warns, "debtor countries must ensure that transactions take place at an undistorted exchange rate, otherwise the discounts on the debt may be outweighed by exchange rate considerations."³⁸ In Venezuela, for example, debt-equity swaps have stalled because "businessmen are unwilling to 'lose' 40 to 50 percent of their investments when the official rate is Bs14.50 to the dollar and the free market rate is fluctuating at between Bs33 and Bs35 to the dollar."³⁹ Costa Rica's limit of converting only up to 75 percent of the debt's \$5.4 million face value into local currency has the same effect as artificially dropping the exchange rate from 70 colones/dollar (the free market rate) to 52.5 colones/dollar.

Even if the exchange rate is fair at the time of the swap, it is always possible that the local government may in the future attempt to suppress inflationary pressures by not allowing the currency to devalue. Interestingly, such an overvalued currency can only help an American looking to convert back into dollars—or even just wanting to buy an American-made product locally (for example, a Jeep for use in the national parks). Evidence of an active black market, such as the one in Venezuela, can therefore portend potential financial erosion if the exchange into local currency has not yet occurred—but it can also be either irrelevant or even good news once the swap has been conducted.

The above analysis shows that, except for the danger of an overvalued local currency at the time of the swap, neither inflation nor rigged exchange rates are important factors when a local currency endowment fund is established through a debt-for-nature swap. Therefore, both of these problems are only marginally important for the Costa Rican and Bolivian plans described here. However, inflation and overvalued exchange rates would be important factors if currency exchanges were spread out over time. In order to enhance the impact of an original dollar-denominated endowment, The Nature Conservancy has contemplated two alternative plans. Plan A would have half of the bond's principal payments converted back from colones into a dollar-denominated fund,

38. The World Bank, *World Development Report* (1987), 22.

39. *Latin American Weekly Report*, October 1, 1987, 4.

and the second half would keep the entire bond dollar-denominated but would convert the interest and principal payments as they came due into colones.⁴⁰

Plan B has been viewed as a way to take advantage of an inflation-induced deterioration of the exchange rate in Costa Rica consistently outstripping inflation in the United States. The Costa Rican government rejected it immediately, and not surprisingly. In its purest form, such an exchange would represent classic arbitrage: by going from dollars into colones and back into dollars again, you could buy \$1 million (par value) of debt today for \$200,000, switch into colones, back into dollars, and walk away with \$750,000 tomorrow. Nevertheless, if strings were attached to the dollar repayments such that they would have to come back into Costa Rica at a later date, this could be an effective hedge against inflation.

Finally, another approach resembles a conventional rescheduling of debt more than it does a debt-equity swap, where no discount is realized on the secondary market. Instead, the term of the debt is simply lengthened (say, from five to eight years), and payments can be made in colones instead of dollars. At the core of this scheme is an attempt to take advantage of excessive inflation in Costa Rica, and the bigger the spread between local and U.S. inflation, the better off would be the dollar-denominated fund. The logic behind this is straightforward. A large inflation spread means that the purchasing power of each subsequent interest principal payment has grown. Table 2 is a summary of a detailed sensitivity analysis of the cash flows of a \$5.4 million Costa Rican bond from the viewpoint of an American NGO. It assumes that the yield on the bond is pegged to the Costa Rican rate of inflation, and that there is a perfectly floating exchange rate between the colon and the dollar. If the rates of inflation in both countries are 5 percent, the present value of the flow of interest and principal payments (discounted at 5 percent) is almost exactly equal to the face value of the bond—that is, the net present value (NPV) is close to zero.⁴¹ But as the interest rate in Costa Rica increases, so does the NPV of the swap to the NGO. Everything else held constant, higher inflation abroad is as good news as lower inflation at home. Using the current estimated inflation rate of 27.5 percent, the internal rate of return for this case is 7.13 percent. Since the inflation rate in the United States is only 5 percent, this proves to be a good “investment” for the NGO.

40. These alternative plans were discussed in two interviews with Randall Curtis at The Nature Conservancy International: November 24, 1987, and February 22, 1988.

41. The Net Present Value calculation at $i=5\%$ does not equal zero exactly due to simplifying assumptions on bond coupon payments.

Table 2. Inflation Sensitivity Analysis, Costa Rica Debt-for-Nature Bond⁴²

U.S. Inflation Rate = Inflation Rate	Costa Rican Inflation Rate	Net Present Value
5.0%	5.0%	US\$ 16,801
"	10.0	56,852
"	15.0	109,773
"	20.0	169,581
"	25.0	232,794
"	27.5	265,004
"	30.0	297,379
"	35.0	362,157
"	40.0	426,451

When the Costa Rican government put a \$5.4 million limit on the current debt-for-nature program, the NGOs persuaded the government not to include donated debt in this figure. Therefore the \$250,000 from Fleet Bank is being considered separately. If the NGOs are successful in getting more donated debt, they hope to create a dollar-denominated "Superfund" of up to \$50 million capable of allocating \$400,000 annually for each of Costa Rica's seven major parks.⁴³ Should they succeed in creating the Superfund, this analysis suggests that the NGOs will benefit if Costa Rican inflation exceeds U.S. inflation, but will suffer should the colon be overvalued in subsequent exchanges into local currency.

Conclusions

Debt-for-nature swaps have been heralded by editorial pages as "bonds for biology" and as "a way to preserve endangered environments like the Amazon rain forest...[and]...ease the foreign debt burden blocking Third World development."⁴⁴ The successes achieved in Bolivia, Costa Rica, and Ecuador now serve as concrete evidence that the idea works. Hundreds of thousands of acres of tropical forest are now being protected, with varying degrees of effectiveness, from lumber crews and reckless slash-and-burn expansion.

42. This analysis borrows heavily from a similar study performed by Peter L. Howell, vice president of Shearson Lehman Brothers, for The Nature Conservancy International (November 4, 1987). See Appendix for a fuller explanation of the spreadsheet analysis.

43. Interview with Randall Curtis, The Nature Conservancy International, February 22, 1988.

44. "Buy Bonds, Save Rain Forests," editorial in *The New York Times*, September 5, 1987.

However, it is dangerously misleading to suggest at this time that debt-for-nature swaps are going to have a significant or lasting impact on the world debt crisis, the dizzying destruction of natural habitats, or the rate of extinction of hundreds of biological species. One estimate that as much as 10 percent of Costa Rica's total debt burden, and 15 percent of Bolivia's, could be relieved through this mechanism is absurd and nothing short of irresponsible.⁴⁵ Not even the billions of dollars exchanged through debt-equity swaps are affecting as much as one percent of the total debt burden, and debt-for-nature swaps are only a fraction the size of their larger relative.

The four principal constraints on debt-for-nature swaps—dormant nationalist resistance, unfulfilled promises, the limited availability of debt, and the twin problems of inflation and overvalued currencies—can all be overcome. Yet, these constraints are significant enough to force a major reevaluation of priorities. Even if successful on a small scale and conceptually elegant, debt-for-nature swaps are so logistically, politically, and economically problematic that they have the effect of trying to move a mountain with a teaspoon.

Faster and larger-scale solutions to the twin problems of debt and environmental degradation must be pursued, and the natural place to look is the public sector. The multilateral development agencies and the U.S. government could address such issues with billions of dollars at a time, not thousands or millions. Prior to the end of 1987, however, the U.S. government's involvement in resolving the debt issue consisted of a stubborn insistence that this is a problem to be settled between the banks and their debtors. This hands-off approach was reflected in former Treasury Secretary (now Secretary of State) James Baker's toothless preaching about free enterprise and anti-inflationary austerity measures in Seoul, Korea in what has come to be known as "The Baker Initiative."⁴⁶ As numerous analysts have suggested for some time, "the most promising approach to easing the [debt] crisis involves a partial assumption of the debt of public-sector entities in exchange for substantial interest-rate relief."⁴⁷

In December 1987 the U.S. Treasury finally acknowledged the merits of intervention and unveiled a refinancing plan for a portion of Mexico's roughly \$100 billion in external debt.⁴⁸ However, the \$10 billion in bonds

45. Ibid.

46. See Riordan Roett, "Beyond the Baker Initiative," in *The SAIS Review*, vol. 6, no. 2 (Fall 1986): 27-37.

47. Weinert, "Swapping Third World Debt," 95.

48. The Treasury Department and Secretary Baker did, however, continue to insist that they played only a passive role in structuring the deal—that all of the negotiations took place between Morgan Bank and the Mexican government.

established by the plan were undersubscribed, and the plan ended up as another in a series of disappointments. The problem is twofold: a lukewarm commitment by the U.S. government and a lack of adequate incentives for the U.S. commercial banks to participate. Although it failed, the Mexican deal could still serve as a possible model for future swaps and as a catalyst for direct and major involvement by the U.S. government in the environmental field. In early March 1989 the Bush administration suggested for the first time that commercial banks should forgive a major portion of the \$400 billion currently owed; this is an encouraging move.

Non-governmental organizations like The Nature Conservancy, Conservation International, and the National Wildlife Federation have pioneered the concept of the debt-for-nature swap and have demonstrated that it can be done. As the NGOs proceed with more debt-for-nature swaps, they must also resume a more traditional lobbying role, pushing the administration and Congress to implement large-scale plans to direct funds for environmental preservation and support activities. Building off the Mexican model, U.S. bonds could be used to collateralize local bonds used to purchase or maintain national parks throughout the Third World. In other words, the U.S. government would guarantee the bond payments should the government default.

Simultaneously, an effort already underway in Congress to encourage the World Bank to "propose environmental structural adjustment lending to expand the potential long-term economic benefits of conservation" should be expanded to include co-financing and loan guarantees.⁴⁹ The congressional bill calls for the World Bank's member countries "to set up two pilot programs: one to make new loans specifically for tropical forest and wetland protection, and one to allow a country that sets aside high-value tracts of tropical forest and wetlands to qualify for partial debt relief from World Bank loans."⁵⁰

The concerted involvement of either the U.S. government or multi-lateral development agencies such as the World Bank would have an impact tens, and maybe hundreds of times larger than the NGOs' debt-for-nature swaps. Only with such a serious commitment from the public sector can meaningful progress be made in the dual effort to reduce Third World debt through swaps and arrest the stampeding destruction of natural resources in the tropics. One may argue, "why should U.S. taxpayers have to help bail out Third World debtors?" The fact of the matter is that

49. Letter from Congressmen John Porter and David Obey to their congressional colleagues: "Help Save Tropical Forests; Cosponsor H.R. 3010," September 14, 1987. See also John Porter, "Paradise Lost?" in *Congressional Record* (vol. 133, no. 122), Thursday, July 23, 1987.

50. Barbara Bramble, "Swapping Debts for Nature," in *International Dams Newsletter* vol. 2, no. 5, (September/October 1987), 7.

U.S. taxpayers are already sharing the debt burden; the losses reported by banks on bad loans reduce the taxes paid by the banks, and therefore reduce government revenues. Taxpayers pay either way.

If such efforts by the U.S. government and the World Bank become reality, they should rely heavily on the lessons learned through the NGO debt-for-nature swaps. Unfortunately, the problem of disparate perceptions of the value of the biosphere and the wisdom of sustainable development remains. Additionally, as long as vast amounts of money are involved, the risks of misappropriation, mismanagement, and opportunism will persist. As the transactions become larger, sensitivity to macroeconomic and sociopolitical repercussions must also intensify. Although they have been and will continue to be limited in their impact and not without flaws, debt-for-nature swaps have broken important ground for hopefully grander and more comprehensive solutions in the future to the twin problems of world debt and environmental degradation.

Using red ink to keep tropical forests green

Debt-for-nature swaps can whittle away at Third World IOU's, but they are no panacea

The painted tribes who inhabit Amazonia's Xingú River basin and the pin-striped cadres of the Potomac could not contrast more. Yet when it comes to preserving Brazil's tropical rain forests, they stand on common ground.

Last week, Indians from 37 Amazon tribes closed ranks to fight off a hydroelectric dam that would flood 3,000 square miles of jungle. At the same time, environmentalists in Washington, D.C., and Rio de Janeiro were pondering a variety of ambitious plans to protect a different swath of Brazilian forest on the Atlantic coast. Using a complicated financing

deal known as a debt-for-nature swap, U.S. and other foreign conservation groups could help save the remaining forests of the Mata Atlantica, a lush coastal forest from north of Rio to south of São Paulo state that once covered 400,000 square miles. Now greatly shrunken by urbanization, the remaining forest is still home to the golden lion tamarin, an endangered monkey.

To save the greenery, conservation groups would buy as much as \$100 million of Brazil's crushing foreign debt at a deep discount, reflecting creditors' doubts about repayment prospects. As with other swaps, Brazil's central bank then would issue cruzado-denominated bonds in the face amount of the original debt. That paper gets turned over to local environmental groups, which use the interest for conservation projects.

Debtors' dilemma. The Mata Atlantica swap could be the largest in a series of deals aimed at turning the crippling liability of foreign-debt payments into an asset for rescuing fragile ecosystems. Debt-for-nature swaps signed with Bolivia, Ecuador and Costa Rica since 1987 (see box) have poured millions of dollars into conservation of wildlife habitats and environmental management. The deals appear to be confirming the theory of former World Wildlife Fund science director Thomas Lovejoy. He proposed the swaps in 1984, to resolve a conun-

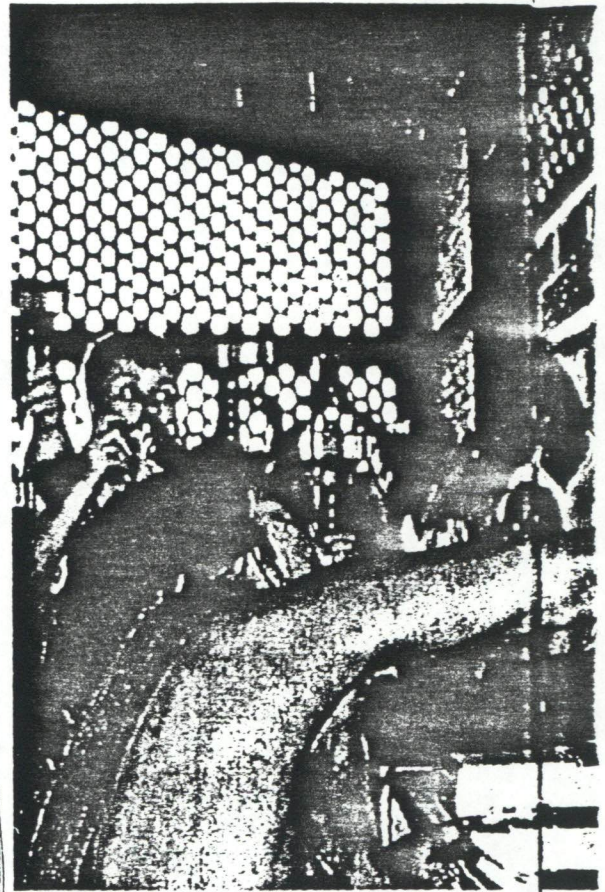
drum that has long troubled environmentalists. Ecologically rich but economically indebted nations tend to put conservation low on their list of priorities. Development aid often aggravates the situation by encouraging industry to rapidly exploit resources in order to earn foreign exchange to pay interest on the external debt.

At first blush, swaps seem the perfect "win-win" solution, even for an area as vast—and politically hot—as the Amazon. The idea drew endorsement in a recent *New York Times* editorial proposing a "grand [\$8 billion] debt-for-nature swap that would ease Brazil's burden of

foreign borrowing and preserve the Amazon forests." At stake is a region that contains 10 percent of the world's animal and plant species. The jungle, dubbed the "earth's lung," is also a valuable producer of oxygen for a polluted world.

Brazil's stewardship of such precious resources has recently come under fire. Officials failed to create promised forest reserves along a World Bank-financed highway through the Amazon. Last year, satellite photos pinpointed thousands of fires burning simultaneously in the Amazon, set by colonists who cleared the forest for government-subsidized farming or ranching. The December murder of Amazonian conservationist Francisco "Chico" Mendes, who had been protesting the Amazon's destruction, further tarnished Brazil's image.

Still, the question remains whether America's financial magic can be used to solve environmental problems as immense as those facing the Indians of the Amazon. Even under the most favorable circumstances, debt-for-nature swaps cannot solve the problems of Third World debt, nor does anybody expect them to. Financially complex and politically delicate, the transactions tend to exacerbate inflation by adding to domestic spending, the last thing borrowers such as Brazil, already throttled by hyperinflation and a \$115 billion foreign



Close shave. Ritualistic threat by a tribes-



Wide swath. A new road through Amazon rain

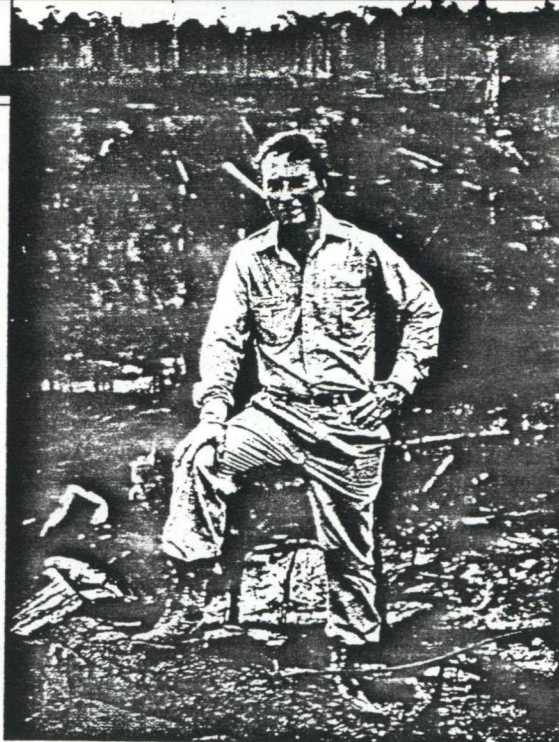
debt, need. In addition, nationalistic pride and military concerns have probably put the 1.8 million square miles of the Amazon region off limits. Recent assertions by European and American legislators that "the Amazon belongs to the whole world—not just Brazil" are

Buying Debt, Saving Nature

The Third World gets a ransom for its forests

In 20 years the forests of the tropics will be largely stripped bare unless Third World countries slow their ravenous logging and mining. Countless species of plants and animals will die in "the greatest extinction since the end of the age of the dinosaurs," says Harvard biologist E. O. Wilson. But biology lectures carry little clout with poor countries desperate for cash to pay huge foreign debts. Now U.S. environmental groups are making an imaginative offer to Third World governments: we'll pay your debts if you'll spare your trees.

The notion won't cure the world's debt or deforestation problems—but it has had some immediate takers. Conservation International, a Washington organization, struck the first big deal last month. It will buy \$650,000 of Bolivia's \$4 billion external debt at a discounted price of \$100,000 from banks eager to dump the mostly uncollectible loans. In exchange Bolivia will set aside 3.7 million acres of Amazon River country around the existing Beni Biosphere Reserve, home to endangered species of cats and monkeys. The Bolivians will retain ownership and management of the land. Costa Rica is financing its Guanacaste National Park with a similar deal,



WOLFGANG BAYER—WORLD WILDLIFE FUND

'The greatest extinction': Lovejoy in Brazil

and Ecuador recently announced it, too, seeks foreign benefactors. A bill introduced recently in Congress would encourage the World Bank to suspend loan payments for tropical countries which protect forests. "We've just begun to scratch the surface," says Thomas Lovejoy of the World Wildlife Fund, the inventor of the swap concept.

Bankers are increasingly willing to trade their bad loans for investments in developing nations, but hotels and factories are more what they have in mind. Swapping for national parks "will work only where the banks have written the debt down to next to nothing and can claim some real benefits

from a tax or political perspective," says Gary Caesar, head of international asset sales at BankAmerica Corp. in New York. Otherwise, the bank's shareholders might protest. Caesar thinks Bolivia is the perfect charity case. Its debts have been discounted to 10 to 15 cents on the dollar since its economy collapsed in the early 1980s from low tin prices and high inflation. By contrast, Brazil's debt goes for 60 cents on the dollar, substantially raising the cost of a tree's ransom.

Environmentalists face a tough sell convincing countries with ambitious development plans. Lovejoy argues that the tremendous diversity of life in virgin forests may be invaluable in the future to genetic engineers searching for new drugs or crops. Nations should "protect their biological capital," he says.

But Brazil, which holds Third World records for both debt and deforestation, is bushwhacking ahead on a vast scheme for highways, farming and iron production in Amazonia in hopes that the profits will someday far outweigh its foreign loans. The World Bank, under criticism for financing Amazon projects, is now negotiating to lend Brazil another \$100 million, this time for forest conservation.

Ultimately environmentalists must confront another problem: a park in the Third World is an island in a sea of poverty. William Conway, general director of the New York Zoological Society, warns that the

preserves will need continuing subsidies for rangers to save them from the hungry and the greedy. Bolivia already has 26 refuges and parks that exist only on paper and do little to shield wildlife, according to local environmental activist Javier Lopez. Recently the Bolivian government charged that several former cabinet ministers were involved in a scheme to export 100,000 skins of rare mountain pigs to Europe. Conway predicts that Costa Rica will run out of firewood in 1990 and that scavengers could descend on its parks. Environmentalists may learn that the Third World has a way of turning its debts into the First World's obligations—something that the bankers could have told them.

JEFF B. COPELAND with
JANE WHITMORE in Washington and
PETER MCFARREN in Bolivia

A Long-Brewing Boycott Ends at Coors

Big Labor may be losing its grip on the economy, but it can still win a barroom fight. Last week Adolph Coors Co. agreed to let the AFL-CIO try to organize workers at its Colorado brewery and also pledged to sign a union-approved contract for any future plant construction. In return, the AFL-CIO called off its 10-year boycott of Coors beer—one of the longest product boycotts in recent history.

The settlement ended a confrontation that began in 1977, when Coors' then-unionized workers went on

strike to protest a plan to give them lie-detector tests. The company subsequently hired nonunion workers to replace them, and the union was ousted. Boycotters managed to get the beer banned from many campus hangouts and even Boston's Fenway Park—and claim to have cut Coors' share of the California and Colorado markets by more than half.

The settlement may be less a testament to labor's remaining clout than to the pressures of the competitive beer market. Coors, the fifth largest brewer in the United

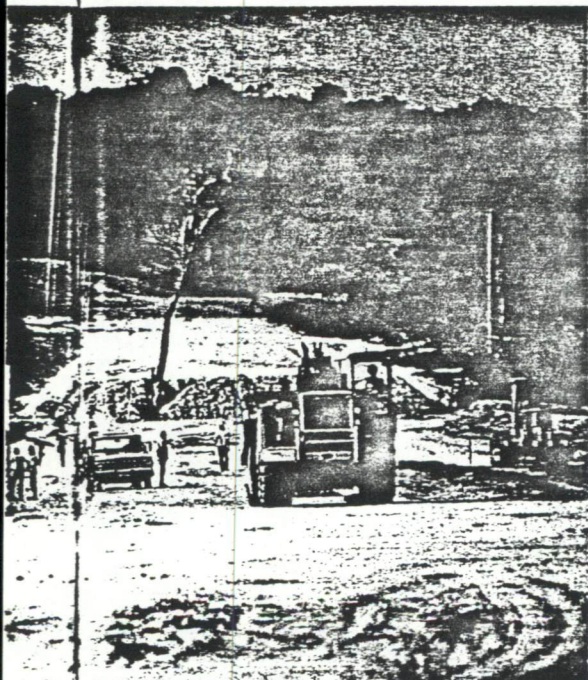
States, has been hurt by the aggressive marketing of rival beer manufacturers Miller Brewing Co. and the Anheuser-Busch Companies, Inc. To compete with the industry leaders, the company has had to expand from its Western base into the heavily unionized Midwest and East, making it more difficult to do business as a nonunion firm.

The labor struggle at Coors now moves to a new front. The Teamsters and the AFL-CIO will fight for the right to represent the brewery workers—if the workers want a union at all.

A Shorta



woman to a Brazilian official underscores real threat to jungle posed by planned dam



forest encourages more settlement

DEBT-FOR-NATURE SWAPS

How they work

1. Bank holding a country's debt sells it at deep discount to conservationists and writes off face value from taxes.
2. The country's central bank redeems the debt and issues local-currency bonds equivalent to the total debt.
3. Debtor-nation conservation organizations use bond interest to finance local environmental-protection projects.

Where they've worked

Bolivia: Conservation International's 1987 redemption of \$650,000 in external debt let government set aside 3.7 million acres of tropical-forest buffer zone.

Ecuador: World Wildlife Fund won government approval in 1987 to retire up to \$10 million in swaps. Proceeds will go to protect and manage national parks on the mainland and on Galápagos Islands.

Costa Rica: \$11 million in debt retired through the Nature Conservancy, WWF and others in 1987 and 1989 to protect and augment parklands.

Philippines: WWF recently committed up to \$2 million to swap external debt for conservation-training funds.

galling to President José Sarney, who says he is afraid that debt-for-nature deals would make the jungle an international arena, a "green Persian Gulf." Interior Minister João Alves, concerned about the nation's wheezing economy, is defensive, too. "We understand the Am-

azon's ecological value, but we have to create 1.7 million new jobs each year and must tap its resources. The big aggressors on the world environment are the industrial nations, which have given us acid rain, most of the greenhouse effect and depletion of the ozone layer."

Swaps are no economic panacea. "No one is offering to cancel \$30 billion of Brazilian debt," observes Massachusetts Institute of Technology economics Prof. Rudiger Dornbusch, an expert on Third World debt. Even if Brazil were to agree to \$1 billion in swaps, 10 times greater than any proposal now even mentioned, that would still represent less than 1 percent of the nation's foreign debt. Moreover, bonds, which are promises to pay in the future, merely postpone the inflationary impact, Dornbusch notes.

Too little, too much. The World Wildlife Fund and other conservation groups acknowledge other practical limitations. Large, international groups such as the Nature Conservancy and WWF cannot devote the majority of their resources to nature swaps; they have far too many other projects. Yet at the same time, while a half million dollars may be a drop in the bucket of Third World debt, it can be overwhelming when focused on a single nature-swap project. As new WWF President Kathryn Fuller has pointed out, "Enormous sums of new money suddenly made available could disrupt home-grown conservation movements deeply rooted in local needs and local culture."

Swaps also rely on creditors' willingness to unload debt at deep discounts. The deals depend on the leverage given to every conservation dollar because of the difference between the debt's face value and the amount at which it can be purchased and converted to local currency. But that advantage may be coming to an end. Banks are sensing that the near calamitous situation of debtor nations such as Argentina, Bolivia and Brazil may soon force a more sweeping solution to the Third World debt crisis, such as partial forgiveness of loans. As banks increasingly write down their Third World debt, its leverage value for swap purposes is reduced, too.

Environmental groups are aware of the limitations of debt-for-nature swaps, yet remain confident that the mechanisms are valuable when deployed properly, even ultimately in the Amazon basin. American conservationists are acting behind the scenes in Brazil and elsewhere to promote a variety of other deals, advising local conservation groups on how to draft their own proposals. Brazilian conservationists believe the Mata Atlantica swap could occur within a year or two. "It's time to go ahead very aggressively with this initiative," argues Brazilian Congressman Fabio Feldmann. Given the scene at the Amazon powwow last week, Brazilian officials may well decide they would rather deal with pin-striped debt swappers than machete-wielding Indians.

by Clemens P. Work and Geri Smith
in Rio de Janeiro



also "ScholarNet: The Beginning of a World Academic Community" by Richard W. Slatta in *THE FUTURIST*, March-April 1987, page 17.]

The challenge for the future is to integrate these and other international, national, intercampus, and campus networks. The National Science Foundation (NSF) has taken a leading role in providing motivation and direction toward the establishment of a "network of networks."

"The NSF has set a goal to provide a national communications infrastructure, enabling collaboration throughout the academic community and access to shared national resources," says Arms. It is no easy matter, she notes, "to provide access to databases that have been developed for different environments or different networks."

National and international academic networking will be achieved, Arms concludes, if those sharing this vision of the future realize the fundamental principle behind networking: cooperation.

Source: *Campus Networking Strategies* edited by Caroline Arms. Digital Press, Digital Equipment Corporation, 12 Crosby Drive, Bedford, Massachusetts 01730. 1988. 321 pages. \$30.

Debt-for-Nature Swaps

More developing countries are looking to "debt-for-nature" swaps to curb tropical deforestation and relieve their debt burden. In these swaps, conservation organizations redeem part of a developing country's debt, and in return that country provides funds to protect its tropical forests.

Many debt-ridden developing countries are richly endowed with some of the earth's most important natural resources, says World Wildlife Fund (WWF), a Washington, D.C.-based conservation organization. Six developing countries — Brazil, Colombia, Indonesia, Madagascar, Mexico, and Zaire — together contain about half of the world's biological diversity. They also owe approximately one-quarter of the developing world's debt.

To increase production and boost exports, developing nations often clear tropical forests for farmland, pastureland, mining, and timber. At the present rate of conversion, the world's tropical forests may be gone in 30 years, according to WWF. Destruction of the natural-resource base is also undercutting

long-term economic productivity.

In recent years, debt-exchange programs have evolved as a means to help developing countries meet their obligations to private banks. Most often, debtor countries unwilling or unable to provide the U.S. dollars needed to repay their debts have offered creditors equity in domestic businesses.

Debt-for-nature swaps involve the acquisition of debt by conservation organizations, at a discount, and its redemption in local currency to be used for conservation purposes. Such swaps can greatly increase the impact of U.S. conservation dollars, since one dollar of acquired debt can yield the equivalent of several dollars' worth of local currency.

Debt-for-nature swaps have thus far been arranged for Bolivia, Ecuador, and Costa Rica, and have drawn the attention of other Latin American debtor nations, reports WWF. There is also interest in Asia, particularly in the Philippines. European banks are considering using outstanding loans in developing countries and Eastern Europe for conservation purposes.

Source: World Wildlife Fund, 1250 24th Street, N.W., Washington, D.C. 20037.

Tropical forest being cleared for agricultural land. Debt-for-nature swaps curb deforestation and help relieve developing nations' debt burden.

RICHARD O. BIERREGAARD, JR. / WORLD WILDLIFE FUND

