

Debt for Nature: A Swap whose Time has Gone?

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Contents

Abstract	5
Introduction	7
I. The Performance of Debt for Nature Swaps	9
II. The Characteristics of First Generation DNS	11
III. Second Generation (Public) DNS	13
IV. The Relevance of DNS in a Wider Context of Environmental Cooperation between North and South	19
V. Prospects for DNS	25
VI. Conclusions	31
References	33
Issues published	35
 Tables	
Table 1	Major Existing Debt Conversion Programs, 1995 14
Table 2	First Generation Debt-for-Nature Swaps: 1987-1994..... 21
Table 3	Total Debt Service in Most Severely Indebted Countries 26
Table 4	Forest Cover of the Most Severely Indebted Countries: 1995 27

Table 5 Other Environmental Indicators of the Most Severely Indebted Countries (1995)29

Figures

Figure 1 Total Debt (US\$) of Severely Indebted Countries that have had DNS..... 16
Figure 2 Total Debt Service as Percentage of Exports for Severely Indebted Countries
that have had DNS..... 17
Figure 3 Debt/GDP Ratios of Severely Indebted Countries 18

Abstract

This paper purports to review the performance of the Debt for Nature Swap (DNS) Programs in light of their dual objectives of lowering deforestation rates as well as the cost of debt servicing. It evaluates the performance of private and Public DNS and inquires whether such swaps have made any significant dent on the debt and deforestation problems besetting many developing countries. It also assesses the prospects for such swaps in the future. We argue that since the prospects for DNS are limited, a more conducive solution for the deforestation problem in many developing countries may lie in generalized resource transfers to these countries of the sort envisaged in recent proposals for a World Environmental Organization (WEO).

Introduction

In the aftermath of the second oil price shock (of 1979) soon after the first shock of 1973, developing countries were faced with mounting international payment obligations. As industrial countries reacted to a deterioration in their terms of trade with raises in the price of their own exportables, developing countries (particularly oil importing developing countries) were faced with even worse external payments conditions. As a consequence, several of them borrowed heavily from multinational banks. This increasing debt burden was further aggravated because of three factors: (i) dramatic increases in real interest rates; (ii) poor returns on money borrowed; and (iii) deterioration in the terms of trade. This burden soon erupted into a full-scale crisis over the global economy (during 1982) with the statement by Mexico that it was unable to meet its international debt obligations. This crisis of inability to repay international debt in time rapidly spread to many developing countries.

Soon, it became evident that repayment of this debt through higher and higher exports was causing serious environmental degradation in these countries because the production of many such exports were highly resource-intensive, with little value added and, as mentioned, often deteriorating terms of trade. Hence, in many countries the expansion of exports together with the impoverishment in the countryside that resulted from the debt-induced economic crisis entailed considerable deforestation and loss of biodiversity.

It quickly became evident that since the value of forests and biodiversity was not expressed in market terms, these resources were being undervalued and, therefore, overexploited. Thus, Kahn

and MacDonald (1995) found evidence of a positive relationship between the levels of external debt and deforestation. Murphy (1994) also found compelling evidence of a positive relation between deforestation and external debt in a cross-section of developing countries facing credit constraints on their external borrowing. Similar arguments have been advanced by Chambers et al. (1996).

As the crisis of debt repayment unfolded, and as has been noted by Sandler and Tschirhart (1993), a latent demand for tropical forest protection became explicit. Many observers, particularly environmental non-governmental organizations (NGOs) in the North, pointed to a mutual coincidence of needs with conservation organizations emphasizing the urgency of protecting the forest cover in the developing countries whereas these countries, themselves, sought a reduction in their external debt repayment obligations. If conservation organizations could pay developing countries through the means of debt reduction to conserve forests both parties would stand to gain. An important question at this juncture then was how this latent demand for protection of forests should be expressed and how should it be tied to the repayment of least developed countries (LDC) debt.¹ A debt for nature swap (henceforth DNS) was floated as a means of facilitating this type of issue linkage.

The idea for a DNS was initiated by Thomas Lovejoy, then with the Washington-based NGO, World Wildlife Fund (WWF). He, in an op-ed piece in the *New York Times*, for the first time linked the issues of debt and deforestation and articulated the rationale for a DNS. He argued that the financial crisis in developing countries had resulted in disastrous reductions in their already meager environmental budgets.² Indeed, because of their economic and financial predicament, many developing countries had to put considerable emphasis on export promotion, which led to increased exploitation of forest and other natural resources.³ However, there could be a hidden demand for the protection of the natural forest cover in these countries that could be made to match the demand for debt relief in the LDC.⁴ In response to this "coincidence of wants" the first DNS was initiated in 1987 by Conservation International, a Washington based NGO in respect of Bolivia. There was then a natural expectation that the potential of instruments such as DNS among other forms of foreign support to protect the environment would be high.

The purpose of this paper is to review the performance of the DNS program in light of their dual objectives of lowering deforestation rates as well as the cost of debt servicing. In doing this, it is useful to ask the following questions: (i) how well have DNS performed in practice? (ii) have these swaps made a dent on the problem of external debt facing the developing countries? (iii) have these swaps made an impact on the problem of deforestation in these countries? (iv) what are the prospects for such swaps in the future? And, to conclude, (v) does the potential relevance of DNS merit the support of a World Environmental Organization (WEO) to help handling these arrangements? We turn now to these questions.

¹ The fact that in light of the debt crisis, much of LDC debt was trading at discounted prices in secondary debt markets reduced the financial obligation of the funding conservation agency.

² In Latin America, for example, public expenditure cuts weakened the environmental improvement efforts from the beginning. The new ministries for the environment, the national commissions for the environment, the institutions in charge of implementing the new environmental laws are still severely underbudgeted and weak.

³ See also Miller (1991) on this topic.

⁴ Cowfer and Epp (1993) find empirical evidence that individuals are willing to pay for tropical forest preservation through NGOs.

I. The Performance of Debt for Nature Swaps

In practice, two kinds of DNS have been agreed upon. These can be broadly classified as "private swaps" and "public swaps". A typical private swap involves three participants: (a) an international organization, usually a conservation organization that usually initiates the process, and agrees to purchase part of the LDC's international debt at a discounted price in the secondary market; (b) the second party is a national conservation organization (NGOs) which may be linked to the international conservation organization in the developed country. This second party is primarily responsible for implementing environmental action; (c) the third party to the swap is one or more governmental agencies in the host developing country. The first such agency is the central bank of the developing country. The central bank agrees to convert a portion of the country's external debt to domestic currency obligations and specifies an upper limit to such conversions. It also agrees on an exchange rate for these conversions. A second governmental agency involved is normally the Ministry of Finance of the LDC. This agency expresses a willingness to receive and channel international assistance and to oversee and regulate the entire transaction.

In a public swap the international conservation organization is replaced by a developed country government. The other two parties to the agreement remain the same. Since DNS through private parties came first and then Northern governments only later private and public swaps are sometimes referred to as first generation and second generation swap agreements.

Debt for nature swaps, by their very nature, involve a number of difficulties. First comes the problem of enforceability of the contract. DNS involve several contractual problems: (i) In an important sense reducing the deforestation in developing countries is an international public good.⁵ However, if only some Northern NGOs or governments are inclined to finance such efforts, other Northern groups would get a free ride. The provision of this public good is essentially voluntary. Underprovision is, therefore, a distinct possibility.⁶ The possibility of such underprovision explains the small scale of DNS transactions—only about \$177.5 million between 1987 and 1994 for private DNS and just over \$ 2 billion overall for the same time period (Table 1); (ii) there are transaction costs that impose risk on all parties involved; (iii) the resources being protected as a consequence of these contracts are forests and other natural resources which are hard to define (progress on these fronts is also hard to measure); (iv) since a typical DNS involves a sovereign nation as one-party and non sovereign entities as other parties the interpretation and adjudication of actions taken becomes problematic.

Partly as a consequence of these problems DNS seem to have evolved in four principal ways: (a) Over time the importance of the host country government in the transaction is becoming less significant; (b) the language of the contracts has tended to shift emphasis from the objectives of the DNS to more specific projects to be undertaken and how the funds are to be spent; (c) the international conservation organization has tended to eschew considerations of it directly owning (say, the LDC forests) since this has often involved negative public reaction in the LDC toward foreign ownership; and (d) LDC governments have progressively been less prone to claiming forests as natural public reserves and working within the parameters of existing nominal ownership. One problem that has beset DNS right from the beginning is the difficulty of third party intervention in case of disputes. This is particularly true in the case of private swaps. The fact that private swaps have been more frequent than public swaps makes the incidence of this problem more serious.⁷ Given these problems, there would naturally be reason to ascertain whether DNS can be self-enforcing. This has been investigated by Chambers et al. (1996). They show that complementary preservation projects are a necessary but not a sufficient condition for DNS to be the outcome of a non-cooperative game. However, their analysis is carried out within a static framework whereas it would naturally be the case that the international conservation agency and the LDC concerned would be interested in the intertemporal evolution of forest cover and debt.

This question is addressed in a theoretical framework by Zagonari (1998) who considers a two-sector LDC economy. The agricultural sector can produce goods only by clearing land but this is not true for the industrial sector. The economy can trade these goods in international commodity markets and can borrow freely in international capital markets. The impact of accumulating foreign debt and its reduction through DNS is analysed. The paper comes to the conclusion that DNS work well only under certain conditions. These are: (i) the fraction of the external debt converted through DNS must be close to the interest rate, and (ii) the reduction in the deforestation rate must be large enough. DNS may lead to absolute depletion of the stock of forests when its initial level is small. Hence, an important conclusion of this paper seems to be that DNS are effective but enforceable only to a limited extent and only when the stock of forests is small. From the perspective of reduction of debt and deforestation, however, it would be more effective to have DNS applied to developing countries with large debt stocks and large forest covers.

⁵ Its valuation by some Northern agencies is particularly high.

⁶ Jha (1998), chapter 6.

⁷ Relevant literature on this problem include Curtis and Turrelles (1992), Fuller (1989), Hansen (1989), Patterson (1990), Reilly (1990) and Wagner (1990).

II. The Characteristics of First Generation DNS

Several parties are (potentially) involved in a debt for nature swap. First, there is the bank to which the LDC owes funds. Given the general inability of the LDC to service them, these debts typically trade at considerable discount in secondary markets. A DNS would involve an agency buying this debt in the secondary market and relieving the LDC concerned from the responsibility of serving even this reduced volume of debt in terms of hard currency. Second, the agency buying the debt in the secondary market must then negotiate with the government and central bank of the LDC concerned. Both the exchange rate at which the debt will be converted into domestic currency and the terms and time profile at which the funds will be released by the LDC government/central bank have to be agreed upon. Then comes the task of identifying the environmental projects on which the released funds would be spent and the question of which agency will be responsible for the protection of the forests and other natural habitats.

These transactions can be identified with a “win-win-win situation”, by which the creditor recovers part of the debt, which is almost considered lost. Further, the debtor does not have to pay its debt in the scarce foreign currency and environmental organizations receive valuable resources in domestic currencies to execute relevant environmental programs.⁸

⁸ Gugler (1997).

The situation under which the first wave of DNS took place has radically changed, at least in the geographic area where these concentrated in the 1980s, i.e., Latin America. The countries in this region have diminished their debt as a percentage of GDP and there is not much urgency for them to turn to the financial secondary markets. Additionally, since they geared toward export markets and have liberalized capital flows, they do not face such an external restraint as in the eighties. In fact, many of these countries have managed to keep a stable nominal exchange rate for a long period of time because of the relatively abundant foreign currency.

This means that the debt, if placed in the secondary market, will not suffer the same price reduction as in the 1980s. Therefore, the attraction that debt swaps had in the previous decade for the buying agent, i.e., acquiring the hard-currency-denominated debt documents at a very low price and exchanging it for near their face value in local currency, is an advantage that has tended to disappear.

Hence, at present the leverage of private DNS is more environmental than financial. The need for DNS seems as valid as ever, not so much to relieve foreign debt, which in fact can only be achieved marginally, as was proven during the first DNS phase, but as a way to finance badly needed environment protection projects.

III. Second Generation (Public) DNS

Partly as a response to the poor performance of first generation DNS the second generation DNS was born. In these arrangements, Western governments, as opposed to conservation organizations, would reduce hard currency international debt obligations of developing countries in return for their using the funds for environmental protection. The first such arrangement was that between Germany and Kenya in 1988 and amounted essentially to writing off part of the Kenyan debt to Germany. Sweden, the Netherlands and finally the United States followed soon.

The contrast with the first phase could not have been starker. The single German-Kenyan agreement more than quadrupled the face value of all prior debt for nature swaps. This underlined the extremely limited scope of privately arranged DNS. Following the agreement of the Paris Club of 1990 on different types of swaps, the amount of funds available for DNS increased dramatically. The mechanism was extended to Eastern Europe in 1991 where Poland proposed the world's largest DNS of 3 billion dollars over eighteen years.

The conversions that have taken place through the United States Enterprise for the Americas Initiative (EAI) and the Swiss Debt Reduction Facility amply surpass the aggregated commercial debt-for-development and debt-for-nature swaps carried out until 1994 (see Table 1). As part of the EAI in 1990, the United States joined the second-generation swap program. Up to 12 billion dollars in government loans could potentially be available for debt reduction or cancellation. Enhanced environmental cooperation was one of the

stated goals of the EAI for Latin America and the Caribbean. Due to legal and congressional delays EAI had a slow start, but by the middle of 1992, the EAI had reduced the official debt of Bolivia, Chile and Jamaica with the United States by 26.3 million dollars. During 1993 Chile, Colombia, El Salvador, Uruguay, Argentina and Jamaica benefited from an additional 90 million dollars in debt reduction. However, since then further disbursements have been caught in the cross fire between the Clinton administration and a subcommittee of the Congress.

The second generation DNS has not run out of potential resources even though there are fewer commercial swaps. In fact, they have considerably expanded, as these transactions have extended to public debt. Public debt titles were initially considered sacrosanct. However, after debt forgiveness had been considered as an option at the 1988 G-7 summit in Toronto and the dangers of deforestation were clear to all, debt forgiveness or linking it to nature became a real option.

Table 1
MAJOR EXISTING DEBT CONVERSION PROGRAMS, 1995
(Millions of dollars)

Major Debt Conversion Programs	Face Value of Debt	Local Currency Generated
Commercial Debt		
Debt-for Nature Swaps 1987-1994	177.6	128.8
UNICEF Swaps 1989-95	199.3	52.9
Development Swaps initiated by Finance for Development 1991-95	175.0	69.2
Official Bilateral Debt		
Swaps under the Enterprise for the Americas Initiative 1991-93	751.8	134.1
Swiss Debt Reduction Facility	746.4	189.9

Source: Gugler, 1997.

The second generation DNS presents several improvements over the first generation of DNS. Among these are the following:

First, the asymmetry of interests between the negotiating parties is not as important in the new version of DNS as compared to the previous one. In the first generation DNS, creditor banks were typically interested in selling the LDC debt at the smallest possible discount whereas the NGO buying the debt sought the minimum price. The LDC government involved intended to minimize the domestic currency equivalent of the transaction. Western NGOs had limited funds to pursue DNS deals. Many international banks that were owed the money would not take it upon themselves to reduce the debt obligation of the LDC government (in return for environmental protection in these countries) since that would have hurt their credit rating. Hence, if DNS was to make a dent on either the environmental or the debt problems, Western governments had to be involved. This was achieved in the second generation of DNS.

Second, by dealing with public debt, the second generation DNS involves a much greater amount of resources in each operation than in the first generation DNS and, therefore, may finance on a more continuous basis NGOs or other organizations that handle environmental programs. Hence, more than financing short-term projects, the prospect for the beneficiaries from the DNS is the creation of endowments and funds or other forms of sustained financial support.

The incorporation of public debt in the DNS helps surmount the very restrictive channel that existed to transfer debt for environmental purposes. Besides the limited funds, donor organizations

often had problems in purchasing the debt papers they needed, since many countries only trade their debts occasionally so the secondary market is, in fact, very tight.⁹ Therefore, the direct conversion of bilateral trade into local currency seems much more expeditious.

Third, the threat of an inflationary effect of DNS has been reduced under the new scheme. In fact, even with the first generation DNS there are studies that show that the inflationary impacts were negligible. For example, a study commissioned by the government of Costa Rica stated that an annual volume of 50 million dollars issued in bonds would have 0.5% inflationary effect. In Costa Rica around 6% of its total commercial debt (of 1.6 billion dollars) was bought in debt-for-nature swaps between 1987 and 1989 through the National Park Foundation. The price was extremely low (17 cents on the dollar) and the local bank exchanged such documents for 75% of the face value of the official bonds. These had around 6 years maturity and nominal interest rates were about 25% each year. Notwithstanding its apparently marginal effect on prices, Costa Rica halted debt swaps at the end of 1989 because of its potential macroeconomic impacts and when the operations resumed they were more limited in scope.¹⁰ Some other schemes were temporarily halted altogether because of similar inflationary fears.

Under the second generation DNS, although the conversion still means an extra expenditure in local currency for the beneficiary government, the local resources released by the DNS are normally canalized to a Fund. These are released in regular modest amounts over a long period of time, and therefore the threat of causing inflationary pressures is much lower than with the first kind of DNS.¹¹ Also, pressure on interest rates does not arise in the second version of DNS since the debt is not converted into bonds that are sold in the domestic financial markets.

However, even with second generation DNS many problems remain unsolved. Among these are, first, the continued differences in environmental agendas between the donor countries and the recipient countries. There is usually a tendency by donors to favour the conservation of world patrimony, while recipient countries have greater interest in canalizing the new funds to more locally urgent problems, such as cleaning up large cities' air, as well as polluted rivers and lakes; preventing further land erosion in agriculture areas, i.e. aspects that may raise the population's well-being quickly, among others.¹² In Latin America, Brazil was probably the Latin American country that initially posed the greatest resistance to the debt-for-nature programs because of the mentioned above colluding environmental agendas.¹³

A second obstacle that has not been satisfactorily surmounted is the enforceability of the program or environment protection actions that are meant to be financed by debt relief. As a commodity "resource conservation" is vague, difficult to define, and subject to different interpretations; the natural assets targeted for protection often are vast and remote and hence difficult to monitor and control. Among the commitments that are difficult to supervise, is the protection of national parks, for example. Others, instead, like the financing of research centers, such as Inbio in Costa Rica (dealing with bio-diversity, and now one of the most prominent worldwide) are much easier to keep track of.

Third, the DNS keep on being a very marginal solution for indebted countries. In fact, in 1996, Argentina, Brazil, Mexico and Chile, total foreign debt services amounted to between 32% and 44% of total goods and services export revenues. This percentage was much lower for South East Asian countries, but Indonesia, for example, had a record similar to Latin America countries, with its debt services amounting to 36.8% of its total goods and services export revenue. Many

⁹ Rosebrock and Sondhof (1991).

¹⁰ Umaña (1995); Miller (1991).

¹¹ Meyer (1997).

¹² Devlin (1991).

¹³ Occhiolini (1990).

more developing countries are still in a similar situation. In Figure 1 we present evidence on the total debt of those countries that according to the World Bank classification are severely indebted and have engaged in DNS. Figure 2 presents evidence on the debt servicing burdens of these countries. This remains very severe and it is clear that DNS of the magnitudes that have been effected would not be able to address this. Figure 3 shows that the debt/GDP ratios of these countries have not tended to decline greatly and remain high. The only exception seems to be Nigeria, the decline of whose debt/GDP ratio has probably more to do with oil exports than DNS. It is clear that DNS has not had a significant impact on the debt situations in these countries.

Finally, Table 3 presents evidence on the debt profile of all the severely indebted countries. The picture looks quite dismal for each one of them no matter what criterion one chooses. However, the scope for using DNS to reduce the severity of the debt crisis is sharply limited.

Figure 1
TOTAL DEBT (US\$) OF SEVERELY INDEBTED COUNTRIES THAT HAVE HAD DNS

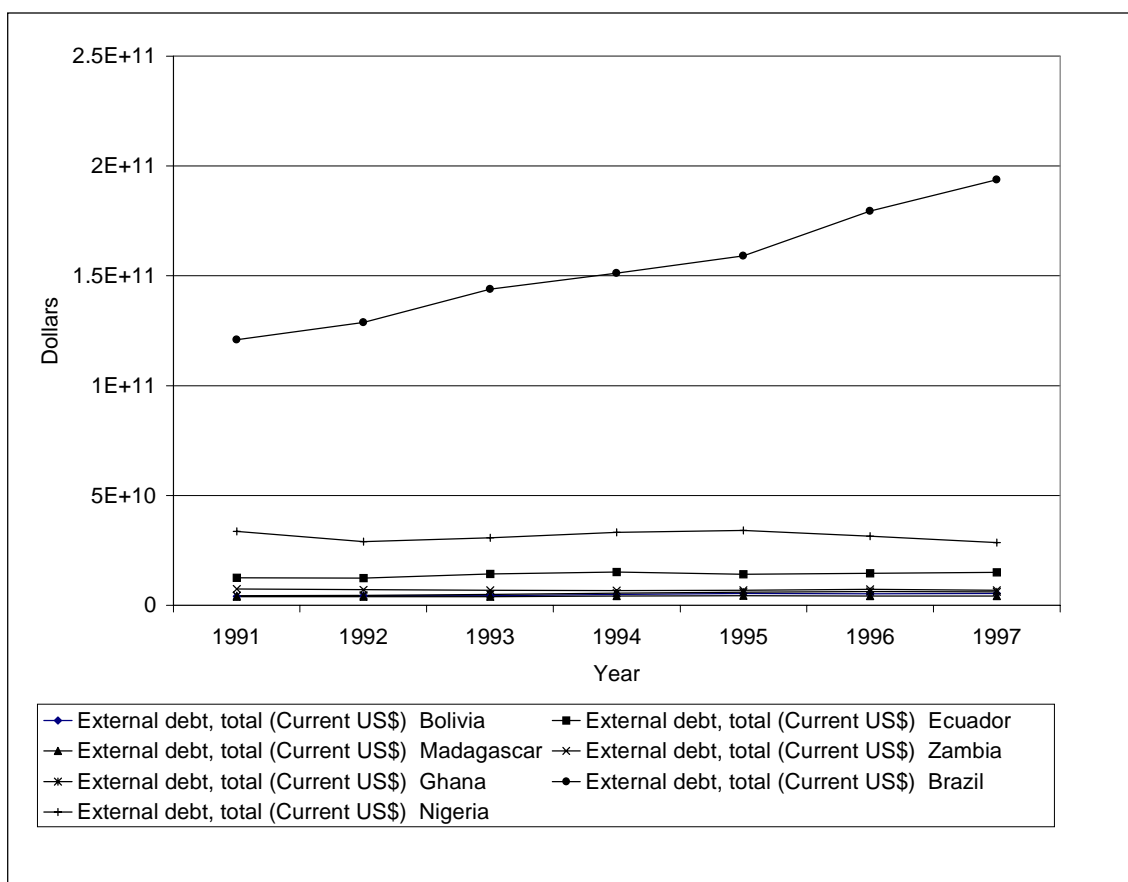


Figure 2
TOTAL DEBT SERVICE AS PERCENTAGE OF EXPORTS FOR SEVERELY INDEBTED COUNTRIES THAT HAVE HAD DNS

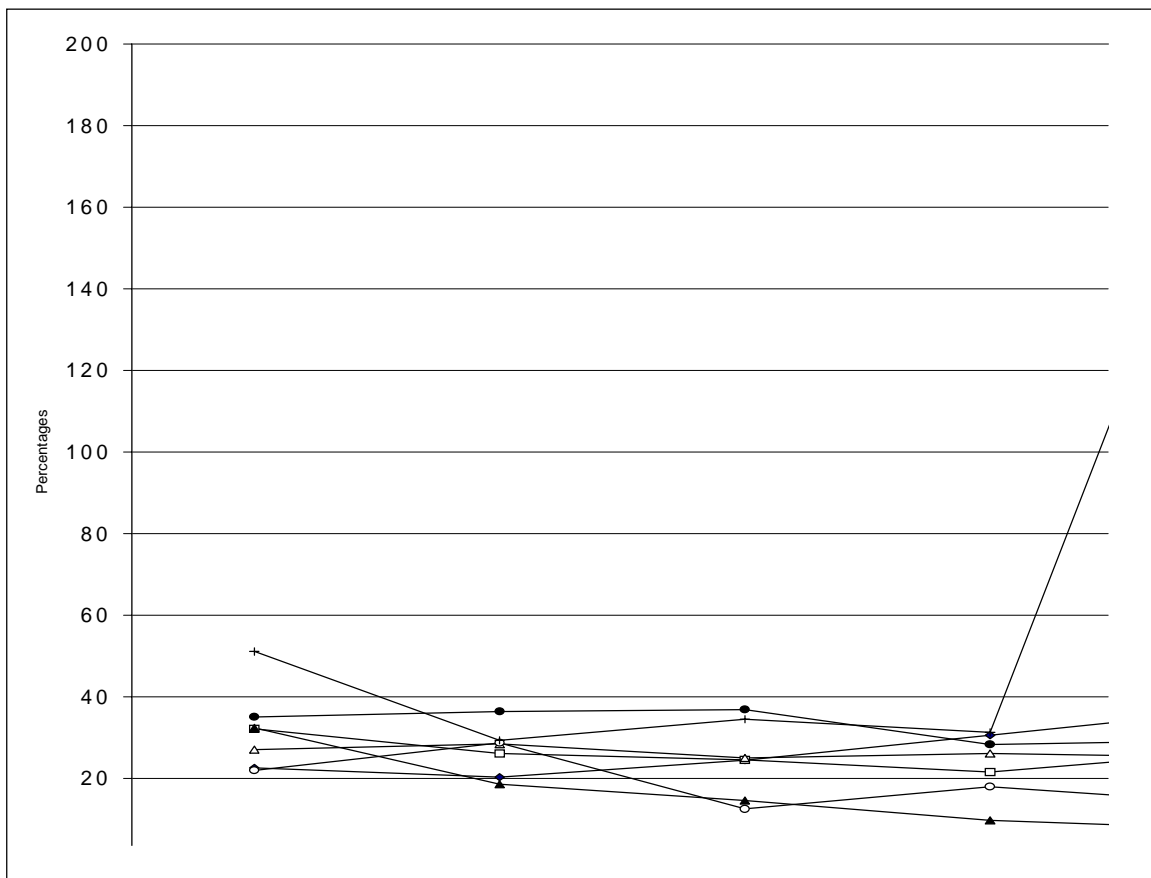
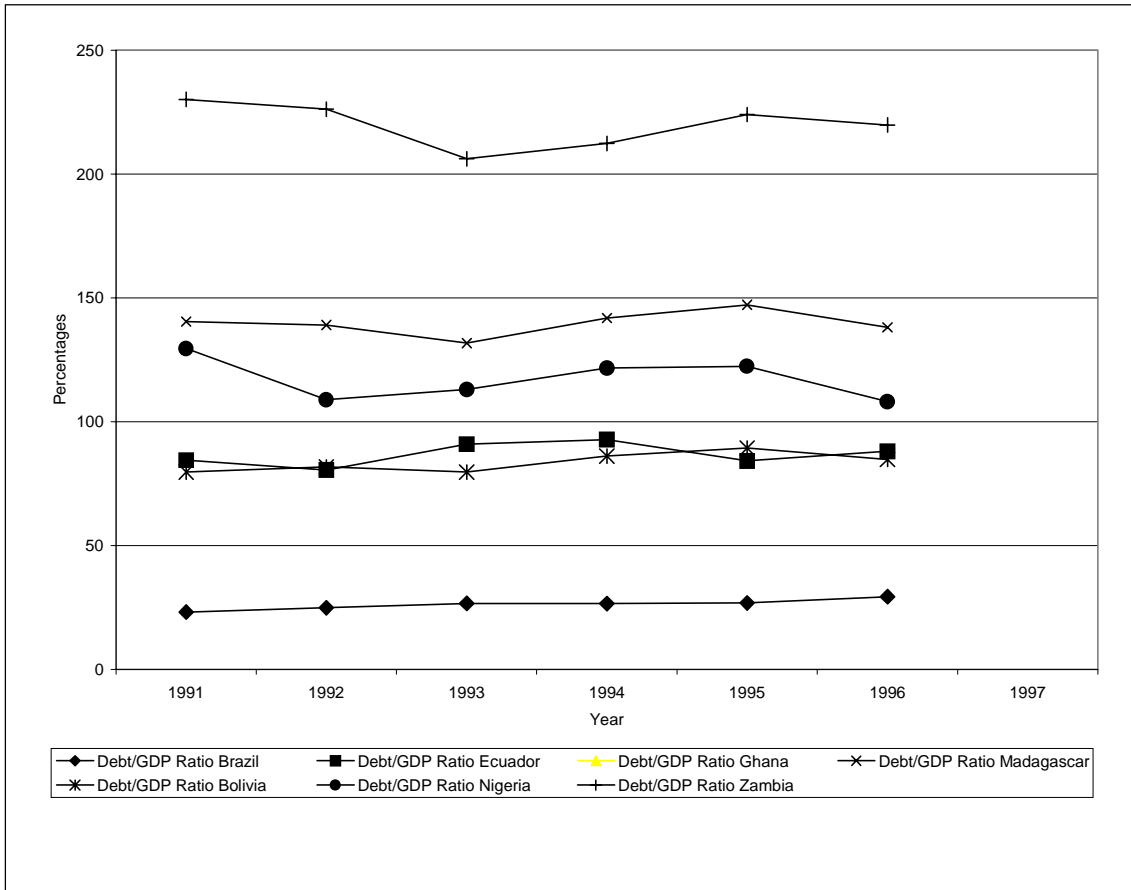


Figure 3

DEBT/GDP RATIOS OF SEVERELY INDEBTED COUNTRIES



IV. The Relevance of DNS in a Wider Context of Environmental Cooperation between North and South

One of the most important outcomes of the Earth Summit in Rio in 1992 was Agenda 21, an ambitious program to achieve world development and cooperation while improving at the same time the world's environmental record.¹⁴ Meeting such an end requires a “substantial flow of new and additional financial resources to the poorest countries, particularly the developing countries...” (Agenda 21, Chapter 1, Preamble). In fact, the cost of implementing Agenda 21 in developing countries was estimated at 600 billion dollars, of which 125 billion were expected to come from foreign aid. With the purpose of raising the latter amount of funds, Agenda 21 proposed the doubling of the official aid (of approximately 60 billion dollars), by raising the contribution of developed countries to 0.7% of their GDP.

Nevertheless, the mentioned above target has not been reached. Instead, the nations belonging to the OECD Development Assistance Committee (DAC) have reduced its Official Development Assistance (ODA)¹⁵ as percentage of GDP from 0.35% in the mid 1980s to 0.22%

¹⁴ Agenda 21 has been seriously criticized for its lack of operational mechanisms (see, Newell and Whalley, 1999).

¹⁵ Does not include aid to transition economies.

in 1997, i.e., to less than half of the United Nations target of 0.7%. In real terms, net concessional flows (which include ODA) in 1998 had fallen by one-third as compared to those of 1990.¹⁶ Furthermore, the prospects for ODA are not favourable, according to the analysis of the World Bank in 1999. In fact, ODA budgets continued declining in 1998 and only three countries announced increases in aid for that year (Sweden, United Kingdom and Ireland), while at the same time Japan, the main ODA contributor, carried out a 10% cut of its assistance. The reasons behind this reduced support of industrialized countries has been the budget deficit in donor countries, scepticism of the usefulness of aid and the end of the Cold War, among others.¹⁷

The specific support of international financial agencies for environmental protection purposes has also fallen short of what is needed. The Global Environment Facility (GEF), whose implementing agencies are the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP) and the World Bank, is the most important of these. This agency concentrates in the areas of biodiversity conservation, climate change, ozone depletion and international waters. GEF had funded more than 500 projects in 120 countries since 1991 with a cost of more than 2 billion dollars. Additionally, GEF has co-financed projects with other private and public sources for another 5 billion dollars.¹⁸ Although impressive, these resources are still minimal as compared to the requirements of international finance estimated at 125 billion dollars in Agenda 21.

Domestic investment in social and environmental sectors in developing countries has not been able to compensate for the insufficient foreign financial support mentioned above, since it has been growing very slowly. In fact, economic reforms after the early 1980s required governments to cut public expenditure, often reducing environment protection budgets.¹⁹ As to the foreign private flows going to developing countries, they almost quadrupled in the period 1990 to 1997, but its contribution to improving environmental performance is uncertain. First, this flow has concentrated in a few countries, mainly the emerging economies, while the poorest nations have had many difficulties attracting foreign direct investment (FDI). Second, FDI as such increased only marginally its participation in total private capital flows going to developing countries, while bond lending and equities' weight gave an enormous leap. The former flow brings new technology, which is, in general, input saving and less polluting, but in the latter case the environmental benefits are not clear.

The need for new creative mechanisms to transfer resources from the North to the South with environmental protection purposes seems particularly urgent, given the limited scope of the traditional channels. Among these the most prominent is the Clean Development Mechanism (CDM) conceived within the Climate Change Convention. Under the CDM industrial countries may meet their emissions reduction commitments by financing CO₂ sequestration or energy generated through renewable resources in developing countries.

The potential positive effects of this program may be illustrated by an example: for a region like Central America,²⁰ with a large concentration of tropical forests which are disappearing at a very high speed (2.5% a year), the CDM is very promising. It has been estimated that the region could trade up to 55 million tons of CO₂ in offset bonds a year, which would render a net income of 1.1 billion dollars, i.e., more than 10% of the present total regional exports.²¹ This would greatly exceed the modest transfer through debt-for-nature swaps that the region received since 1987 (see

¹⁶ World Bank (1999).

¹⁷ Ibid.

¹⁸ GEF (2000).

¹⁹ UNEP, 1999.

²⁰ Including Belize, El Salvador, Costa Rica, Guatemala, Honduras, Nicaragua and Panama.

²¹ INCAE-HIID (1999); Bulmer-Thomas and Kincaid (2000).

Table 2). Nevertheless, only a part of this program seems promising for Central America, i.e., the energy part of the CDM, whereas the CO₂ absorption projects through forest management seem riskier for potential CO₂ sequestration bond buyers. The insecurity in land tenure in most of the Central American region causes uncertainty about land use in the future. Since the bonds must guarantee the CO₂ absorption service over twenty years at least they are going to be difficult to issue on a solid basis. Hence, unless property rights are settled adequately, the North will be too skeptic to transfer resources in considerable amounts to the South through this mechanism.

In Table 2 below we enumerate the set of DNS that had taken place until 1994.²² Since then the number of DNS has diminished but the amount involved in each operation has expanded

Table 2
FIRST GENERATION DEBT-FOR-NATURE SWAPS: 1987-1994
(Millions of dollars)

Country	Year	Cost	Face Value	Conservation Funds	Purchase Price (%)	Redemption Price (%)	Millions of dollars	Organization/ Country
Bolivia	1987	0.10	0.65	0.25	15.4	38.5	2.5	Conservation International
Ecuador	1987	0.35	1.00	1.00	35.4	100.0	2.8	World Wildlife Fund
Costa Rica ^a	1988	5.00	33.0	9.90	15.2	30.0	2.0	The Netherlands
Costa Rica	1988	0.92	5.40	4.05	17.0	75.0	4.4	National Park Foundation of Costa Rica
Costa Rica	1989	3.50	24.50	17.10	14.3	69.8	4.9	Sweden
Costa Rica	1989	0.78	5.60	1.68	14.0	30.0	2.1	The Nature Conservancy
Ecuador	1989	1.07	9.00	9.00	11.9	100.0	8.4	World Wildlife Fund/ The Nature Conservancy/Missouri Botanical Gardens
Madagascar	1990	0.95	2.11	2.11	45.0	100.0	2.2	World Wildlife Fund/USAID
Philippines ^b	1989	0.20	0.39	0.39	51.3	100.0	2.0	World Wildlife Fund
Zambia	1989	0.45	2.27	2.27	20.0	100.0	5.0	World Wildlife Fund
Costa Rica	1990	1.95	10.75	9.60	18.2	89.3	4.9	Sweden/ World Wildlife Fund/The Nature Conservancy
Dominican Republic	1990	0.12	0.58	0.58	19.9	100.0	5.0	Conservation Trust of Puerto Rico/The Nature Conservancy
Poland	1990	0.01	0.05	0.05	24.0	100.0	4.2	World Wildlife Fund
Philippines	1990	0.44	0.90	0.90	48.8	100.0	2.1	World Wildlife Fund
Costa Rica ^{c,d}	1991	0.36	0.60	0.54	60.0	90.0	1.5	Rainforest Alliance/Monteverde Conservation League/ The Nature Conservancy
Madagascar ^e	1991	0.06	0.12	0.12	49.6	100.0	2.0	Conservation International
Mexico ^f	1991	0.18	0.25	0.25	72.0	100.0	1.4	Conservation International
Mexico ^{f,g}	1991	0.00	0.25	0.25	0.0	100.0	n.a.	Conservation International
Ghana ^h	1991	0.25	1.00	1.00	25.0	100.0	4.0	Debt for Development Coalition/ Conservation International/Smithsonian Institution

/Continue

²² Until 1994 a total of thirty-two debt for nature swaps had taken place.

Table 2 (Conclusion)

Country	Year	Cost	Face Value	Conservation Funds	Purchase Price (%)	Redemption Price (%)	Millions of dollars	Organization/ Country
Nigeria	1991	0.07	0.15	0.09	43.3	62.0	1.4	Nigerian Conservation Foundation
Jamaica	1991	0.30	0.44	0.44	68.6	100.0	1.5	The Nature Conservancy
Guatemala ^d	1991	0.08	0.10	0.09	75.0	90.0	1.2	The Nature Conservancy
Mexico	1992	0.36	0.44	0.44	80.5	100.0	1.2	Conservation International/ USAID
Philippines ⁱ	1992	5.00	9.85	8.82	50.8	89.5	1.8	World Wildlife Fund
Guatemala	1992	1.20	1.33	1.33	90.0	100.0	1.1	Conservation International/ USAID
Guatemala	1992	1.20	1.33	1.33	90.0	100.0	1.1	Conservation International/ USAID
Brazil	1992	0.75	2.20	2.20	34.0	100.0	2.9	Conservation International
Panama	1992	7.50	30.0	30.0	25.0	100.0	1.1	Conservation International/ USAID
Bolivia ^l	1992	0.0	11.50	2.76	0.0	24.0	n.a.	World Wildlife Fund/ Conservation International
Philippines	1993	13.0	19.0	17.70	68.4	93.2	1.4	World Wildlife Fund
Madagascar	1993	0.91	1.87	1.87	48.7	99.9	2.1	World Wildlife Fund
Madagascar	1994	0.0	1.34	1.07	0.0	79.9	n.a.	World Wildlife Fund
Total Average		46.30	177.56	128.77	37.2	86.3	2.3	

Source: World Wildlife Fund, The Nature Conservancy and World Bank, 1994, pp.165.

Notes: n.a. = Not applicable.

Cost = Expenditures by environmental agency to acquire the sovereign debt. *Face Value* = Face Value of the Sovereign Debt acquired by the environmental agency. *Conservation Funds* = Value in dollars equivalent to the local currency part of the swap (either face value of the environmental bond or local currency equivalent). For bonds the figure does not include interest earned over the life of the bonds. Overhead fees charged by the government are not deducted.

Purchase price = Conversion rate from foreign debt to local debt (conservation funds or face value).

Leverage = Redemption price or purchase price.

^a Includes \$250,000 donations from Fleet National Bank of Rhode Island.

^b Total amount of agreement is \$3 million.

^c World Wildlife Fund contributed \$1.5 million to this deal on top of the swap.

^d Purchase of Central American Bank for Economic Integration (CABEI) debt.

^e Total amount of program is \$5 million.

^f Total amount of program is \$4 million.

^g Debt donated by Bank of America.

^h Involves buying blocked local currency funds from multinationals. Also includes Midwest Universities Consortium for International Activities and US Committee of the International Council on Monuments and Sites.

ⁱ Face value of debt includes \$200,000 debt donation by Bank of Tokyo.

^j Debt donated by JP Morgan.

All in all, as compared to other potential sources of environmental protection finance, the DNS, particularly in its more recent version, seems to be a non-negligible opportunity for developed countries to contribute for environmental protection in developing countries, and for the latter to widen their scarce resources for these purposes. Although DNS can only be carried out in small percentages of total foreign debt, if macroeconomic stability in host countries is to be preserved, it still is greatly underutilized.

Furthermore, the debt problem itself has not improved over the last decade and a half, at least for the most backward countries. In fact, in Agenda 21 debt relief is considered essential for developing countries to be able to undertake sustainable development. The measures suggested for this purpose in the Agenda are the reduction of developing countries' debt with private banks by 200 billion dollars, the cancellation of most of the 40 billion dollars bilateral debt of low income

highly indebted poor countries (HIPC) and, finally, the reduction to about one half of the 80 billion dollars bilateral debt of the middle-income very indebted countries. Again, these goals have not been accomplished. This is especially true for the group of developing countries with low human development, whose external debt as a percentage of GDP had increased from 69% to 93% between 1985 to 1997.²³

It is precisely this situation which has led to important initiatives by several industrialized countries to cancel part or all the debt owed to them by HIPCs. The HIPC Initiative adopted in 1996 and then deepened in 1999 by the G7 Group considers reducing by 100 billion dollars the debt of 33 of the poorest countries. Considering the urgency of the beneficiary countries, this initiative has moved forward very slowly; the HIPC Trust Fund had only received 400 million dollars by the spring of year 2000.²⁴ Furthermore, not all creditor countries have engaged in the same way. While Canada, the United States and the United Kingdom agreed to cancel 100% of the debt of the HIPC, Japan, France and Germany only did so partially.

Recently, the debt relief for HIPCs has become more closely linked to environmental protection. This is the case with several United States Congress bills,²⁵ the most recent of which was passed in March 1998 and authorized assigning 325 million dollars to help developing countries reduce their debts through debt-for-nature swaps which favour tropical forests conservation. As opposed to simply writing off the debt, DNS guarantees that there will be resources spent in buying debt bonds of the developing country and these will be channelled back to that country through the mechanisms described in Section I and used for ecological purposes. Therefore, DNS is a more active instrument to transfer resources for environmental purposes as compared to the HIPC Initiative.

²³ Instead, this percentage fell in the medium human development group from 35 to 33% and in the high human development group from 56% to 36% of GDP between 1985 and 1997. See UNDP (1999).

²⁴ Oxfam (2000).

²⁵ These include the Biden and Lugar initiative which in 1989 made 154 million dollars available for debt-for-nature swaps to Latin America, and the Tropical Forest Conservation Act of 1998, which assigned 325 million dollars for debt-for-nature swaps. Pdt. Clinton also proposed an additional forgiveness of 70 billion dollars forgiveness for the HIPCs through debt-for-nature swaps in March 1999.

V. Prospects for DNS

What are the prospects for DNS in the future? This question has gained some relevance in the aftermath of the debt crises of the 1990s in several developing countries. However, in attempting to answer this question it would be natural to consider only those countries that have high debt levels and are therefore, in need of debt relief. We choose the most severely indebted (MSI) countries (World Bank Classification). As Table 3 indicates by any criterion, the international debt situation of the forty nine countries belonging to the MSI group is alarming. Hence, there would appear to be a prospective role for DNS in such cases. One of the most important environmental problems that have been pointed out in developing countries is deforestation and DNS could be used to decelerate this process. The MSI countries are, on average, not particularly forested. As Table 4 indicates twenty four of the forty nine countries had forest cover in excess of 25% of their land in 1995 (FAO estimates).²⁶ Further these countries are quite concentrated regionally—ten are in Tropical South America and Central Africa. Only ten have annual deforestation rates of 1% or higher. Some of these, including Guyana and Honduras, are geographically small in area. It appears, therefore, that although DNS may offer an opportunity to lower deforestation rates in some of the MSI countries, its role could be more important in helping preserve other resources such as water, biodiversity, promoting cleaner or less natural resource intensive energy, among others (Table 5).

²⁶ 1995 is the latest year for which forest cover data is available.

Table 3
TOTAL DEBT SERVICE IN MOST SEVERELY INDEBTED COUNTRIES
(% of exports of goods and services)

Country	1991	1992	1993	1994	1995	1996	1997
Afghanistan	..	..	..	..	..	..	..
Angola	10.7	6.2	5.1	8.1	12.0	15.4	15.9
Argentina	33.6	29.0	36.9	31.0	34.3	44.1	58.7
Bolivia	35.0	36.4	36.8	28.3	29.3	30.7	32.5
Bosnia and Herzegovina	..	..	..	..	..	..	..
Brazil	22.6	20.3	24.4	30.6	36.8	42.3	57.4
Bulgaria	6.6	8.7	6.5	13.0	16.5	19.3	14.4
Burkina Faso	9.9	7.4	8.8	12.1	11.4	11.3	11.8
Burundi	30.6	36.5	36.2	39.4	27.7	53.6	29.0
Cameroon	16.8	16.3	22.5	21.8	20.6	22.3	20.4
Central African Republic	8.3	9.3	4.9	13.0	6.8	6.7	6.2
Congo, Dem. Rep.	9.5	5.6	2.1	1.2	1.4	2.7	0.9
Congo, Rep.	24.5	12.9	10.8	54.2	14.5	20.4	6.2
Cote d'Ivoire	37.9	32.1	33.2	35.2	23.1	26.8	27.4
Cuba	..	..	..	..	..	..	..
Ecuador	32.2	26.1	24.6	21.6	26.5	22.7	31.0
Ethiopia	25.2	23.9	18.5	19.8	19.1	42.2	9.5
Gabon	12.0	16.3	5.9	10.3	15.6	11.4	13.1
Ghana	27.1	28.4	25.0	26.1	25.2	26.9	29.5
Guinea	16.1	12.7	11.1	14.3	25.0	14.7	21.5
Guinea-Bissau	112.5	102.0	22.6	22.3	64.4	40.0	17.3
Guyana	..	20.7	17.2	16.4	17.0	15.1	17.6
Haiti	11.8	4.8	4.2	1.9	48.8	13.9	15.9
Honduras	27.7	32.4	27.7	29.8	31.0	26.7	20.9
Indonesia	34.3	32.6	33.6	30.7	29.9	36.6	30.0
Iraq	..	..	..	..	..	..	..
Jamaica	29.0	27.8	20.2	17.1	17.0	17.2	16.2
Jordan	24.2	19.6	15.2	13.6	12.7	12.3	11.1
Madagascar	32.4	18.6	14.6	9.8	7.6	10.2	27.0
Malawi	24.9	24.9	22.4	20.6	27.7	16.9	12.4
Mali	8.0	9.8	12.9	17.0	13.3	18.1	10.5
Mauritania	20.4	18.2	30.0	24.4	22.9	21.0	24.2
Mozambique	22.6	22.9	32.9	31.2	34.5	26.0	18.6
Myanmar	13.1	6.2	11.8	13.4	19.3	12.1	8.0
Nicaragua	151.8	32.6	33.7	38.9	39.5	24.0	31.7
Niger	24.7	12.0	24.2	23.7	16.7	16.3	19.5
Nigeria	21.9	28.7	12.5	17.9	13.8	14.0	7.8
Peru	24.8	20.3	57.0	17.9	16.1	35.2	30.9
Rwanda	16.4	20.3	19.9	10.0	20.4	19.8	13.3
Sao Tome and Principe	16.7	21.7	22.3	17.9	21.2	31.3	52.0
Sierra Leone	6.8	16.8	17.5	73.4	61.5	45.7	21.2
Somalia	..	..	..	..	..	..	..
Sudan	4.2	6.3	3.8	0.6	10.0	7.1	9.2
Syrian Arab Republic	9.7	6.1	5.5	6.8	4.7	3.9	9.3
Tanzania	40.3	40.4	26.9	19.0	17.9	18.9	12.9
Uganda	73.3	57.3	64.8	43.7	20.0	20.0	22.1
Vietnam	6.4	7.1	11.0	5.7	4.9	3.9	7.8
Zambia	51.1	29.3	34.5	31.3	186.0	22.3	19.9

Source: The World Bank.

Table 4
FOREST COVER OF THE MOST SEVERELY INDEBTED
COUNTRIES: 1995
(Thousands of hectares)

Country	Total Forest Cover	Other Wooded Land	Other Land	Total Forest Cover (%)	Total Other Wooded Land (%)	Other Land (%)	Forest Cover Change 1990-1995 (% per year)
Afghanistan	1 398	1 415	62 396	2.1	2.2	95.7	-6.8
West and Central Asia	41 564	25 768	1 020 960	3.8	2.4	93.8	0.7
Angola	22 200	54 004	48 466	17.8	43.3	38.9	-1.0
Tropical Southern Africa	141 311	198 613	212 979	25.6	35.9	38.5	-0.8
Argentina	33 942	16 500	223 227	12.4	6.0	81.6	-0.3
Temperate South America	42 648	25 170	298 212	11.7	6.9	81.3	-0.3
Bolivia	48 310	8 632	51 496	44.6	8.0	47.5	-1.2
Tropical South America	827 946	174 760	382 972	59.8	12.6	27.6	-0.6
Bosnia and Herzegovina	2 710	n.a.	2 390	53.1	n.a.	46.9	0.0
Eastern Europe	827 822	4 562	1 082 736	43.2	0.2	56.5	0.0
Brazil	551 139	105 914	188 598	65.2	12.5	22.3	-0.5
Tropical South America	827 946	174 760	382 972	59.8	12.6	27.6	-0.6
Bulgaria	3 240	298	7 517	29.3	2.7	68.0	0.0
Eastern Europe	827 822	4 562	1 082 736	43.2	0.2	56.5	0.0
Burkina Faso	4 271	9 377	13 712	15.6	34.3	50.1	-0.7
West Sahelian Africa	39 827	65 016	423 116	7.5	12.3	80.1	-0.7
Burundi	317	989	1 262	12.3	38.5	49.1	-0.4
Central Africa	204 677	103 806	114 858	48.3	24.5	27.1	-0.6
Cameroon	19 598	15 539	11 403	42.1	33.4	24.5	-0.6
Central Africa	204 677	103 806	114 858	48.3	24.5	27.1	-0.6
Central African Republic	29 930	16 185	16 183	48.0	26.0	26.0	-0.4
Central Africa	204 677	103 806	114 858	48.3	24.5	27.1	-0.6
Congo, Dem. Republic	109 245	52 759	64 701	48.2	23.3	28.5	-0.7
Central Africa	204 677	103 806	114 858	48.3	24.5	27.1	-0.6
Congo Republic	19 537	5 383	9,230	57.2	15.8	27.0	-0.2
Central Africa	204 677	103 806	114 858	48.3	24.5	27.1	-0.6
Cote d'Ivoire	No data available						
Cuba	1 842	1 302	7 838	16.8	11.9	71.4	-1.2
Caribbean	4 425	2 452	15 954	19.4	10.7	69.9	-1.7
Ecuador	11 137	3 569	12 978	40.2	12.9	46.9	-1.6
Tropical South America	827 946	174 760	382 972	59.8	12.6	27.6	-0.6
Ethiopia	13 579	n.a.	86 421	13.6	n.a.	86.4	-0.5
East Sahelian Africa	57 542	57 772	354 352	12.3	12.3	75.4	-0.7
Gabon	17 859	1 710	6 198	69.3	6.6	24.1	-0.5
Central Africa	204 677	103 806	114 858	48.3	24.5	27.1	-0.6
Ghana	9 022	8 405	5 327	39.6	36.9	23.4	-1.2
West Moist Africa	46 324	93 846	63 328	22.8	46.1	31.1	-1.0
Guinea	6 367	10 788	7 417	25.9	43.9	30.2	-1.1
West Moist Africa	46 324	93 846	63 328	22.8	46.1	31.1	-1.0
Guinea-Bissau	2 309	140	363	82.1	5.0	12.9	-0.4
West Sahelian Africa	39 827	65 016	423 116	7.5	12.3	80.1	-0.7
Guyana	18 577	331	777	94.4	1.7	3.9	0.0
Tropical South America	827 946	174 760	382 972	59.8	12.6	27.6	-0.6
Haiti	21	108	2 627	0.8	3.9	95.3	-3.4
Caribbean	4 425	2 452	15 954	19.4	10.7	69.9	-1.7
Honduras	4 115	1 446	5 628	36.8	12.9	50.3	-2.3
Central America and Mexico	75 018	89 863	77 061	31.0	37.1	31.9	-1.2

/Continue

Table 4 (Conclusion)

Country	Total Forest Cover	Other Wooded Land	Other Land	Total Forest Cover (%)	Total Other Wooded Land (%)	Other Land (%)	Forest Cover Change 1990-1995 (% per year)
Indonesia	109 791	29 434	41 932	60.6	16.2	23.1	-1.0
Insular Southeast Asia	132 466	39 624	72 327	54.2	16.2	29.6	-1.3
Iraq	83	109	43 545	0.2	0.2	99.6	0.0
West and Central Asia	41 564	25 768	1 020 960	3.8	2.4	93.8	0.7
Jamaica	175	399	509	16.2	36.8	47.0	-7.2
Caribbean	4 425	2 452	15 954	19.4	10.7	69.9	-1.7
Jordan	45	122	8 726	0.5	1.4	98.1	-2.5
West and Central Asia	41 564	25 768	1 020 960	3.8	2.4	93.8	0.7
Madagascar	15 106	7 226	35 822	26.0	12.4	61.6	-0.8
Insular East Africa	15 220	7 323	36 332	25.9	12.4	61.7	-0.8
Malawi	3 339	112	5 957	35.5	1.2	63.3	-1.6
Tropical Southern Africa	141 311	198 613	212 979	25.6	35.9	38.5	-0.8
Mali	11 585	16 633	93 801	9.5	13.6	76.9	-1.0
West Sahelian Africa	39 827	65 016	423 116	7.5	12.3	80.1	-0.7
Mauritania	556	3 980	97 986	0.5	3.9	95.6	0.0
West Sahelian Africa	39 827	65 016	423 116	7.5	12.3	80.1	-0.7
Mozambique	16 862	38 524	23 023	21.5	49.1	29.4	-0.7
Tropical Southern Africa	141 311	198 613	212 979	25.6	35.9	38.5	-0.8
Myanmar	27 151	20 683	17 921	41.3	31.5	27.3	-1.4
Continental South East Asia	70 163	45 917	74 045	36.9	24.2	38.9	-1.6
Nicaragua	5 560	1 705	4 875	45.8	14.0	40.2	-2.5
Central America and Mexico	75 018	89 863	77 061	31.0	37.1	31.9	-1.2
Niger	2 562	7 880	116 228	2.0	6.2	91.8	0.0
West Sahelian Africa	39 827	65 016	423 116	7.5	12.3	80.1	-0.7
Nigeria	13 780	49 869	27 428	15.1	54.8	30.1	-0.9
West Moist Africa	46 324	93 846	63 328	22.8	46.1	31.1	-1.0
Peru	67 562	16 754	43 684	52.8	13.1	34.1	-0.3
Tropical South America	827 946	174 760	382 972	59.8	12.6	27.6	-0.6
Rwanda	250	694	1 523	10.1	28.1	61.7	-0.2
Central Africa	204 677	103 806	114 858	48.3	24.5	27.1	-0.6
Sao Tome and Principe	56	n.a.	20	73.7	n.a.	26.3	0.0
Central Africa	204 677	103 806	114 858	48.3	24.5	27.1	-0.6
Sierra Leone	1 309	5 074	779	18.3	70.8	10.9	-3.0
West Moist Africa	46 324	93 846	63 328	22.8	46.1	31.1	-1.0
Somalia	754	15 187	46 793	1.2	24.2	74.6	-0.2
East Sahelian Africa	57 542	57 772	354 352	12.3	12.3	75.4	-0.7
Sudan	41 613	25 776	170 211	17.5	10.8	71.6	-0.8
East Sahelian Africa	57 542	57 772	354 352	12.3	12.3	75.4	-0.7
Syrian Arab Republic	219	239	17 920	1.2	1.3	97.5	-2.2
West and Central Asia	41 564	25 768	1 020 960	3.8	2.4	93.8	0.7
Tanzania	32 510	34 788	21 061	36.8	39.4	23.8	-1.0
Tropical Southern Africa	141 311	198 613	212 979	25.6	35.9	38.5	-0.8
Uganda	6 104	9 657	4 204	30.6	48.4	21.1	-0.9
Central Africa	204 677	103 806	114 858	48.3	24.5	27.1	-0.6
Vietnam	9 117	13 717	9 715	28.0	42.1	29.8	-1.4
Continental South East Asia	70 163	45 917	74 045	36.9	24.2	38.9	-1.6
Zambia	31 398	27 988	14 953	42.2	37.6	20.1	-0.8
Tropical Southern Africa	141 311	198 613	212 979	25.6	35.9	38.5	-0.8
World	3 454 382	1 462 835	8 063 801	26.6	11.3	62.1	-0.3

Source: FAO website:<http://www.fao.org>.

Table 5
OTHER ENVIRONMENTAL INDICATORS OF THE MOST SEVERELY INDEBTED
COUNTRIES (1995)

Country	Number of known threatened species			Annual Internal Renewable Water Resources, per capita (m ³) 1998	Traditional Fuels (% of Total Energy prod.) ^a	Thermal Electricity Production (% of Total Electricity Prod.)	Per capita Carbon Dioxide Emissions (metric tons)
	Mammals	Birds	Higher plants				
Afghanistan	11	13	6	2 354	88.0	33.4	0.1
Angola	17	13	25	15 376	5.0	25.9	0.4
Argentina	27	41	170	19 212	1.3	45.8	3.7
Bolivia	24	27	49	37 703	7.7	43.0	1.4
Bosnia and Herzegovina	10	2	0	-	-	35.5	0.5
Brazil	71	103	463	31 424	41.2	6.9	1.6
Bulgaria	13	12	94	2 146	1.8	46.1	6.7
Burkina Faso	6	1	0	1 535	98.0	65.9	0.0
Burundi	5	6	1	546	98.0	1.7	0.0
Cameroon	32	14	74	18 711	50.0	3.1	0.3
Congo, Dem. Republic	38	26	7	19 001	86.1	0.3	0.0
Congo Republic	10	3	3	78 668	5.9	0.7	0.5
Cote d'Ivoire	16	12	66	5 265	86.0	42.2	0.8
Cuba	9	13	811	3 104	70.0	99.0	1.5
Ecuador	28	53	375	25 791	4.9	55.1	2.0
Ethiopia	35	20	153	1 771	98.4	7.8	0.7
Gabon	12	4	78	140 171	3.5	22.9	3.3
Ghana	13	10	32	1 607	91.7	0.7	0.2
Guinea	11	12	35	29 454	99.0	64.8	0.1
Guinea-Bissau	4	1	0	14 109	99.0	100.0	0.2
Guyana	10	3	47	281 542	99.0	98.4	1.1
Haiti	4	11	28	1 460	98.3	59.5	0.1
Honduras	7	4	55	9 015	86.3	12.4	0.7
Indonesia	128	104	281	12 251	16.4	82.2	1.5
Iraq	7	12	2	1 615	0.0	98.0	4.9
Jamaica	4	7	371	3 269	99.0	97.9	3.7
Jordan	7	4	10	114	0.0	99.7	2.5
Madagascar	46	28	189	20 614	99.0	42.2	0.1
Malawi	7	9	61	1 690	97.1	2.3	0.1
Mali	13	6	14	5 071	98.3	22.4	0.0
Mauritania	14	3	3	163	0.0	81.6	1.4
Mozambique	13	14	92	5 350	99.0	91.1	0.1
Myanmar	31	44	29	22 719	71.6	59.6	0.1
Nicaragua	4	3	78	39 203	67.2	50.4	0.7
Niger	11	2	0	346	91.5	100.0	0.1
Nigeria	26	9	9	1 815	19.9	59.4	0.8
Peru	46	64	377	1 613	27.7	17.8	1.3
Rwanda	9	6	0	965	99.0	2.4	0.1
Sao Tome and Principe	-	-	-	-	-	-	-
Sierra Leone	9	12	12	34 957	99.0	100.0	0.1
Somalia	18	8	57	563	-	100.0	0.0
Sudan	21	9	8	1 227	98.7	29.0	0.1
Syrian Arab Republic	4	7	10	456	0.0	83.6	3.2
Tanzania	33	30	406	2 485	98.2	13.1	0.1
Uganda	18	10	6	1 829	98.0	0.9	0.0
Vietnam	38	47	350	4 827	33.9	12.9	0.4
Zambia	11	10	9	9 229	78.5	0.5	0.3
World	-	-	-	6 918	6.4	63.0	3.9

Source: *World Resources, 1998-1999, A Guide to Global Environment*, Oxford University Press, 1998.

^a Traditional fuels include: fuelwood, charcoal, bagasse, and animal and vegetable wastes.

VI. Conclusions

The debt for nature swaps mechanism has been very modestly used until now partly because of the threat it poses on macroeconomic stability of the indebted country, partly because of the complicated dealings involved and finally because of free-riding of Northern countries in environmental terms.

Nevertheless, in its latest version, DNS have become simpler and more significant both in terms of the amount of debt involved and the financial support it provides for environmental projects without inducing macroeconomic instability in the countries involved. Still, DNS has a more important role to play in the environmental rather than the debt arena.

Put this way, the argument for DNS dovetails neatly into the argument for mutually beneficial linked contracts envisaged in the proposal for a WEO. In fact, to the extent that it is used, DNS would be facilitated by a WEO. The WEO could make available information, standardize the procedures to be undertaken in a DNS and provide the service of handling the deals. The DNS could complement arrangement that canalize funds from the North not related to developing countries' debt conversion. If one of today's serious problems of the financial support of the North to the South in environmental matters is the fragmentation of such transference, the lack of coherence between them, the overlapping and the gaps, the task of a WEO in this sense seems potentially very important.

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