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Debt for Nature Swaps: Overview and Discussion of Key Issues

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ABSTRACT

Debt-nature swaps involve the purchase of developing country debt at a discounted value in the secondary debt market, and cancelling the debt in return for environment-related action on part of the debtor nation.

The present debt situation of many LDCs possessing tropical forests is seen as an opportunity to trade off bad debt against habitat preservation. However, mixing the potentially strong economic forces for trade in habitat preservation from poor to rich countries with alleviating the debt crisis of some LDCs could sidetrack from the real issues and pave way for distortions with long term adverse efficiency and distributional impacts in debtor countries.

So long as the amounts at stake are marginal and perceived as additional by the debtor government tying arrangements such as debt-nature swaps may prove beneficial because the opportunity costs of the freed funds is very low. Once such swaps take on a larger scale, however, additionality may no longer be that obvious to the debtor government. As a result such debt swaps cannot realistically be counted on to turn the tide.

Perhaps the most important contribution of aggressive promotion of such swaps will be the awakening of policy- and decision-makers around the world to the accelerating environmental degradation towards irreversibility of many unique and fragile tropical habitats along with an increased awareness of the increasing opportunity cost of diminishing renewable resources. Such awakening may in turn lead to a changed political climate for environmental management in general and increased scope for international cooperation in this area.

The innovative strength of the many NGOs engaged in this habitat preservation work in LDCs should be further stimulated. The debt-nature swap concept is clear proof of the wealth of new ideas arising out of such initiatives, and stimulates the overall debate on much needed options to save our common tropical habitat in a most productive way.

There are a variety of options for World Bank intervention to protect tropical rainforests if priorities suggest that resources should be allocated further towards this end. Structural adjustment lending, removal of resource depleting subsidies and price distortions, provision of incentives for sustainable resource management and project/program designs constitute key elements. While the World Bank should be enthusiastic and creative in encouraging soft loans for improved resource management and assist in determining the most efficient environmental preservation program options, debt-nature swaps involving World Bank loans cannot be part of the menu of options. On a case-to-case basis, however, the Bank could provide technical assistance for swaps involving private debts.

DEBT FOR NATURE SWAPS:
OVERVIEW AND DISCUSSION
OF KEY ISSUES

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DEBT FOR NATURE SWAPS:
OVERVIEW AND DISCUSSION
OF KEY ISSUES

I. THE SETTING

1. There is a rapidly increasing world wide interest in the conservation -- or optimal utilization -- of diminishing renewable natural resources in developing countries (LDCs). It is being gradually accepted that sound management of natural resources is essential for sustainable economic development and political stability. This has resulted in widespread activities towards development of environmental management strategies for the consideration by donor -- and recipient governments, multilateral development banks, the private banking sector and the industrial sector.
2. Parallel to this over the past few years, developing countries have faced drastically increasing debt burdens due to dramatic increases in real interest rates, deteriorating terms of trade and poor returns on the money borrowed, and debt servicing has become critically difficult for many LDCs.
3. These parallel developments have led several observers to try to link the debt crisis with natural resources conservation, notably environmental and religious NGOs in the U.S.A. and other Western countries.
4. It is typically claimed¹ that "the debt crisis has simultaneously made environmental protection a more pressing issue while reducing government capacity (in LDCs) to address it." They call for measures to limit what they see as "the destructive effects of conventional lending on natural resources in borrowing countries." They want conventional lending replaced with "funds made available for beneficial programs to promote sustainable economic development."
5. However, other NGOs simply note the fact that a high proportion of the world's remaining tropical forests resides in some of the world's most indebted countries. While they find that the prospects for DEBT-NATURE swapping are promising and could represent a unique opportunity to support conservation in indebted countries, they do not see it as a solution to the debt and environmental crises.²
6. The growing acceptance that much of the accumulated debts will never be fully serviced has led private lenders to search for ways to

¹/ Barbara J. Bramble, National Wildlife Federation to U.S. Congressional Summit on an Economic Agenda for the 1990s, September 2-4, 1987, Vienna, Austria: "The linkage of the debt crisis with natural resources conservation require some explanation, since it is not clear at first glance. But there is an important connection."

²/ See World Wildlife Fund (WWF): "Debt-for-Nature Swaps -- Background Information," Washington D.C., January 1988.

minimize the expected losses from such loans. A secondhand market for LDC debts has emerged where substantial discounts can be had.³

7. This has contributed to the development of a broad menu of environmental management and debt adjustment arrangements⁴ some of which have already been put to practice (the debt-nature swaps between Bolivia and Ecuador and conservation groups (NGO) in the U.S.A.).⁵

8. The World Bank's operations are based on the assumption that the Bank's loans will be fully paid in cash in the agreed time. As will be elaborated in Section 8 later in this paper, there are important legal and practical limitations for World Bank involvement in debt-nature swaps. Also, there exists no secondary market for World Bank debt as compared to commercial bank debt. However, technical assistance can be used on a case-by-case basis.

II. WHAT IS A "DEBT-NATURE" SWAP?

9. Basically, one can distinguish between three different kinds of debt swaps:

- a. DEBT-DEBT swaps which amount to a transaction between creditors who interchange foreign loans;
- b. DEBT-EQUITY swaps which involve the conversion of external debt into some form of equity but foreigners continue to hold a claim on debtor country resources; and
- c. DEBT-RESCUE swaps ("BUY BACK") which consists of a repurchase of a country's debt in the secondary markets.

10. DEBT-NATURE swaps are a kind of DEBT-EQUITY swaps which involve the purchase (at discounted value in the secondary debt market) of a developing country debt, and cancelling this in return for environmental-related action on part of the debtor nation.

11. At least four different DEBT-NATURE swap variations have been proposed:⁶

³/ See Jay H. Newman: "Trends in Market for Developing Country Debt and Debt Equity Conversions," Table 2.1, p. 15, Chapter 2 in Steven M. Rubin (Ed): "Guide to Debt Equity Swaps," Special Report No. 1104, The Economist Publications, London, September 1987.

⁴/ National Wildlife Federation: "Environmental Management & Developing World Debt Adjustments: A New Strategy," Module #4 Prototype Adjustments. (Undated paper).

⁵/ See for example Conservation International "News -- Bolivia Sets Precedent With First Ever "Debt for Nature" Swap." Press release dated July 13, 1987, Washington D.C.

⁶/ See undated National Wildlife Federation paper, Module #4, op. cit.

- a. conversion of debt by the central bank into local currency or local debt (bonds) to be held by a local environmental organization for investment in environmental projects;
- b. donation of debt to a local environmental organization for investment in environmental projects;
- c. purchase of debt by an environmental organization and discounted sale to a multinational corporation (MNC) to support environmentally-sound corporate investments; and
- d. official debt relief tied to supporting environmental management.

12. Debt-Nature swaps could also be termed "Debt-Expenditure Swaps" because NGOs are interested in obtaining domestic currency, at a discount, which they subsequently want to use for conservation-type expenditures or which they want the government to use for that purpose.⁷

13. The first ever DEBT-NATURE swap took place in July 1987 when an American NGO purchased USD650,000 of Bolivia's foreign debt to a private bank at a discounted price of USD100,000, and swapped its face value against Bolivian "conservation payments-in-kind" with the Government of Bolivia, putting together a public-private partnership to develop a program that combines ecosystem conservation and regional development planning in the 3.7 million acres tropical forest land, including a USD250,000 fund in local currency for establishment of the administration, management and protection of the reserve.

14. Recently, an Ecuadorian NGO and a U.S. conservation NGO agreed to purchase Ecuadorian foreign debt with a face value of USD1 million to be exchanged for the issuance of non-negotiable stabilization bonds in local currency in favor of the local NGO. The yields accruing on the bonds are then to be used for a variety of conservation activities in Ecuador.

15. Costa Rica has also announced a similar DEBT-NATURE program and a number of other countries have established or expressed interest in swap-programs which might be congenial to DEBT-NATURE swaps (Chile, Mexico, Philippines, Brazil, Argentina).

16. The enthusiasm and optimism surrounding the potential of DEBT-NATURE swaps for solving both the environmental and debt problems -- albeit at an admittedly modest scale (Bolivia's foreign debt totals USD4 billion) -- requires some sober analysis of the real underlying forces at play and the dynamics of the processes at work. Economic analysis can perhaps provide some insight into this complex matter, and a simplified model is developed in the following section to point out some of the unavoidable realities that are not easily removed by means of financial swaps.

⁷/ This has been pointed out to the author by Mr. Woonki Sung.

III. ON THE LINKAGE OF ENVIRONMENTAL DEPLETION TO THE DEBT CRISIS⁸

17. Assume a low income debtor country, faced with a situation in which it might find economically advantageous to harvest the tropical forest it possesses, at a rate leading to deforestation compared to preserving it or to harvest a sustainable yield.

18. Assume further that all imports to this country are production capital K and that all K is imported. A foreign loan G_0 is arranged for at time t_0 to finance such capital imports. Let annual exports be Y and assume foreign trade in balance at all times from t_0 . Let G_0 denominate initial foreign debt, let D denote annual depreciation and let r be the interest rate on the loan. Assume that only interest payments are to be serviced and the following equation for annual capital increase I results:

$$(1) \quad I = Y - D - r G_0$$

19. Assume further that the tropical forest as a natural resource also provides a household value to the country's population in addition to providing for income for material consumption. Reduced forest stock thus affects utility negatively.

20. Assume that consumers plan their future by maximizing their discounted utility. Since the country in question is a poor LDC, the average consumer derives his primary utility from his subsistence level consumption bundle (and not so much in the form of pleasure from the forest stock) in the nearest future, and will have a high discount rate as basis for his choices (this is especially true where -- as is often the case in such settings -- such land users simply have leases for a limited time period or hold informal limited-term rights in land or for use of trees).⁹

21. To begin with, the reductions in the forest stock are so small that they are hardly noticeable for the consumer. However, the rate of depreciation of the forest stock accelerates, and after some time the stock level providing for household value (utility from the forest stock other than that derived from the income consumption) will have reached a critically low level with a severed disutility impact on the consumers.

22. The point is that the negative utility effects (reduced household value) from reduced forest stock come gradually and will not strike fully - if at all -- in the utility function of the consuming population for many years. Combined with perhaps a limited time horizon for reasons of uncertain rights to the forest or to the use of trees¹⁰ plus the high

^{8/} See Annex 2 for a technical presentation and model assumptions.

^{9/} See Douglas Southgate: "The Economics of Soil Conservation in the Third World," paper prepared for The World Bank, Department of Agr. Ec. and Rural Sociology, The Ohio State University, Columbus, June 1986 and William B. Magrath: "The Challenge of the Commons: Nonexclusive Resources and Economic Development: Theoretical Issues." Working paper from World Resources Institute, Washington D.C., October 1986.

^{10/} See Douglas Southgate and William B. Magrath, op. cit.

individual discount rate, the rational consumer faced with such options will hardly choose to preserve the tropical forest out of free will.

23. A country has borrowed money abroad to expand its production capacity and associated infrastructure faster than what would be possible on the basis of domestic savings alone (borrowing for consumption is not assumed to take place in this case). Such capital import provides for increased extraction of the natural resource base, but could also provide for better management of the same resource base, perhaps investments to increase its sustainable yield.¹¹ Given normal and planned debt servicing development -- which by definition causes no problems to the borrower -- the time preference (the rate of discount) and the preference for increased income (consumption) relative to increased tropical forest stock will determine the effect of the debt on environmental management.

24. Assume now that debt servicing becomes a severe problem for one or more of the reasons mentioned in the introduction of this paper. In the above model this can be represented by an exogenous increase in the interest rate. If the remaining model assumptions are maintained, this implies reduced capital accumulation according to equation (1) and thus reduced capacity to produce. Unless there is a change to a more hazardous forest extraction technology or a reallocation from other domestic sectors to forestry as a result of the increased debt servicing requirement, the outcome would be less pressure on the forest.

25. It can thus be seen that there is no simple causal link between the debt crisis and environmental degradation.

26. Assume now that the country somehow gets rid of the debt G_0 in equation (1) above. Export revenue Y would then increase the production capital base K as compared to a situation where part of it must be used to service the debt. As a consequence the country's production potential for extraction of the tropical forest is increased. Clearly, the increased capital availability also provides the option for investments in environmentally more sustainable extraction technologies, but there is no assurance in the system that this in fact will happen.

27. It is thus seen that linkages between the debt crisis and the environmental conservation crisis are not necessarily economic of nature, but the present debt situation of many LDCs possessing tropical forests is seen as an opportunity to trade off bad debt against habitat preservation. The following issues seem to be dominant in this linkage debate:

- a. preservation of LDCs' tropical forests; and
- b. reduction of the debt burden on these indebted LDCs.

^{11/} This is a reflection of the fact that there is, in general, no unique relationship between high discount rates and environmental deterioration as it is often supposed. For further elaboration, see Anil Markandya and David W. Pearce: "Environmental Considerations and the Choice of the Discount Rate in Developing Countries," Department of Economics, University College, London, July 1987 (prepared for ODA, London).

28. Economically speaking it appears as if the industrialized countries -- at least some concerned interest groups and lobbies in the U.S. -- were prepared to pay for the preservation of some perhaps unknown resources in the tropical forests in the LDCs in question because they believe this could be of great value to the world in the future. In other words, the LDCs seem to have something genuine to offer/export to the rich countries that, contrary to traditional primary sector LDC exports, is becoming increasingly scarce and that the rich countries might be willing to pay for:

- a. the preservation of genetic diversity; and
- b. sustainable management of global commons (the global warming issue).

29. Thus, there appears to be an LDC export-potential for public goods to the rest of the world requiring imaginative institutional supplements that has yet to be properly explored, perhaps in the form of creating some sort of markets for the services of preserving the said genetic diversities and management of the global commons.

30. In this sense, purchasing of conservation by the rich from the poor could be a useful tool for improving global environmental management where the immediate benefits from development of tropical habitats are enjoyed by the indigenous populations of these habitats, while the future benefits of habitat preservation are enjoyed by the world as a whole.

IV. ENVIRONMENTAL MANAGEMENT AND INCENTIVE STRUCTURES

31. DEBT-NATURE swaps as they currently are being tested in the private sector are unlikely to do much to reduce the debt burden in the countries concerned, but could have major impact on conservation resources.

32. Reducing the debt burden -- as an action by itself -- is unlikely to reduce the pressure on the tropical forest resources so long as the consumers' discount rate is high and their average disposable income is low.

33. Tropical forest preservation would require specific conditionality/activities with enforcement and/or changes in the incentive system to spare the forest in return for scrapping of a debt.

34. Without sustainable incentives influencing the outcome of utility maximization, force in some form -- such as the ability to withhold future money if the contract is not met to implement agreed-upon conservation program -- would be required, and this is a complicated matter when it comes to contracts in which one party is a sovereign government.

35. The immediate question is how much compensation is needed to induce the country to adopt a sustainable forest management activity or, put in the context of debt swapping: how much debt must be written off to provide sufficient compensation?

36. The answer depends on how serious the country perceives the debt to be to its economic and political status. In other words: how does the government value a drop in reputation, or the risk of being subject to pressure in some form, or the loss of creditworthiness?

37. The history of defaults over the past century and a half suggests that the latter is much less serious a threat than bankers like to believe. Experience has shown that bankers look more to the future than to past history.

38. Government reputation is a variable that must be assessed at time of proposal on a case specific basis as is the case with the threat of pressure. If the government already has a conservation program in place, risk of contract breach is no larger than for any other grant aid for conservation projects, but then it is important to check to what extent the DEBT-NATURE swap really provides additional funds or simply ends up substituting for other programmed conservation activities.

39. What appears to hold true is that the debt for nature swap must take the form of a compensation that can be stopped if the forest management agreement is not strictly adhered to. This suggests annual or other periodic compensation payments to make the country choose to abide by the debt for nature swap agreement rather than to breach it.

40. Even with such an arrangement there are limits to what enforcement can achieve; e.g., low paid wardens and forest watchers seldom have real authority and must rely on voluntary compliance when they attempt to stop poaching. They might be subject to severe local pressures from groups that feel they have not received a fair share of the compensation, and to corruptive measures from powerful interest groups. Such problems are particularly difficult where the property rights in trees have been made essentially unenforceable.¹²

41. A swap with a one time payment up front of the agreement period is less likely to achieve the desired results in the case discussed above, because the required threat (penalty) is only present to the extent the government is seriously concerned about getting future grants on similarly favorable conditions.

42. In addition to reaching a successful agreement/contract with the LDC government, a great deal needs to be understood and clarified regarding the impacts on and benefits to the directly affected indigenous populations. Such local groups must be involved and play a key role from the very beginning of developing a conservation strategy and plan for implementation, and a multidisciplinary effort is required to acquire the necessary understanding of how to create local and national political acceptability and cooperation.

43. Incentives, regulations, penalties and policing requirements, along with the associated budget required for day-to-day operations of such

^{12/} See William B. Magrath, op.cit, for a detailed discussion and examples.

agreements, need to be worked out on a project-by-project basis in a cost-effective manner because the areas being considered for conservation are under strong and increasing pressure for alternative and nonsustainable land uses.

44. This challenge is all the more difficult because the debtor governments already feel overburdened with policy -- and structural reform programs requiring massive managerial and administrative monitoring resources, and in most cases lag far behind schedules of implementation. Thus, adding various environmental action programs as illustrated in the comprehensive "An Around the Clock Action Program for Saving Africa's Tropical Rainforest"¹³ (see Annex 1) therefore poses special managerial bottleneck issues that need to be addressed explicitly on a case-by-case basis.

45. An expressed governmental concern for environment and a high preference for better environmental management will not lead to voluntary decisions and resource allocations to that effect unless such preferences are higher than preferences for competing activities, such as for example immediate income derived from increased production from tropical forests. Given the income level and time preference of consumers in such a country, untied allocations are likely to support increased extraction rather than increased preservation. The decisive issue is relative and not absolute priorities/preferences.

46. It is clear that, to the extent that citizens of rich nations reap the benefits from the preservation of the rainforests, they must compensate tropical nations for foregoing the immediate benefits of development. The asymmetry between costs and benefits of habitat preservation requires international rectifying measures as discussed in a recent proposal that involves the following seven steps:¹⁴

- a. recognizing a separation of development rights from other ownership rights;
- b. prioritizing endangered habitats on a global basis;
- c. selection of potential preserves and offering prices for each preserve by the tropical nations;
- d. a transfer of funds from advanced nations to tropical nations in exchange for development rights;
- e. the establishment of a foundation in each tropical nation to receive funds and to administer the preserve;

¹³/ See M. Dyson and J. Spears: "Options for Bank Intervention to Protect Africa's Rainforests," Annex II, unpublished paper, The World Bank, November 1987.

¹⁴/ See M. T. Katzman and W. G. Cale, Jr., op. cit., for a specific proposal of institutional innovations, pp. 15-24.

- f. selling "research rights" to commercial, chemical and pharmaceutical companies; and
- g. respecting aboriginal rights to use preserves.

47. The feasibility of this comprehensive proposal is, of course, yet to be documented and it is probably far into the future. Still, however, it provides an interesting and perhaps necessary approach if such global commons issues shall be taken seriously and acted upon on a large scale.

48. Although privately initiated DEBT-NATURE swap arrangements clearly undersupply conservation as a public good, such arrangements do not require a whole new and politically complex institutional setup as visualized in the above Katzman and Gale proposal. They therefore provide a small but operational contribution readily available for private sector initiatives.

V. ADDITIONALITY, FUNGIBILITY AND FICTION

49. Throughout debt-nature swap proposals, additional funds to LDC governments are assumed to create the incentives for them for entering into arrangements for environmental improvements or better environmental management.

50. The eagerness of the borrowers to enter into such contracts is likely to relate closely to the perceived opportunity cost of such swaps, e.g., the degree of additionality they perceive. If no such additionality is perceived, a contract will only be reached if the borrowing country by itself attaches sufficient priority to the issue.

51. Basically, the benefits of debt-swaps to debtors depend on the expected evolution of the discounts in the secondary markets for debts. The debt is repurchased by reserving a piece of tropical forest for purposes determined by the seller of the discounted debt, and in this sense the foreign seller continues to have a claim on domestic resources.¹⁵

52. While the original lender, e.g., the private bank, has no particular interest in the environment per se and just wants to get rid of its bad debts, the NGOs operating in the secondary market for such debts focus on environmental concerns and are the real sellers of discounted debts in the swaps.

53. The benefit of such swaps for the debtor country is determined by the difference between the present value of the costs of the outstanding debt and the present value of the cost of equity. The larger the debtor country's share in the discount, the lower the present value of the cost of equity and the larger the benefit of the swap.

54. Even if the present value of the costs of outstanding debt and equity are the same, debt-equity swaps may still be beneficial for the

^{15/} See E. Barandiaran and F. Larrain: "Managing the Latin American Debt: The Contribution of Debt Swaps," a World Bank research proposal, September 1987, pp. 17-18.

debtor country to the extent that the resource transfer to foreigners is effectively contingent on the state of the economy rather than independent of it.¹⁶

55. A number of leakages can reduce the potential benefits from debt-equity swaps for the debtor country, although some that apply to conventional debt-equity swaps appear less relevant to at least the most frequently discussed forms of debt-nature swaps.

56. Investments that would have occurred with foreign resources regardless of the swap are not a clear swap benefit to the debtor country. Only if the investment is clearly additional or if the terms of such an investment have become measurably more favorable as a result of the swap will a real benefit be experienced. As such swaps become more widely known and accepted, environment related ministries will be going "cap in hand" to donors waving already planned strengthening of conservation measures to seek the highest bidder.¹⁷

57. Domestic investors might try to round-trip disguised as foreign investors and acquire control of their own land through an offshore company owned by them.

58. Established foreign companies might repatriate profits and capital simply to come back as a "new" foreign investor through a debt-equity swap.

59. Such leakages will provide no additionality for the debtor country.¹⁸

60. In the debt-nature swaps so far, the monetary and fiscal implications have been negligible because of the small amounts involved. Less than full additionality (perhaps even a net negative impact) will result where a massive conversion of debt into equity causes pronounced fluctuations in asset prices which would harm the economy. Large swaps could have an inflationary impact unless corresponding cuts were made in the budget deficit.

61. Less additionality will also result the higher the portion of the debt discount appropriated by the debtor in the swap. While the immediate gain for the debtor country is larger, the incentive for foreign investors is reduced. Future investments may drop behind what would have occurred even without the swap arrangement.

62. This leads to the question of fungibility. Clearly, a given sum in the form of untied foreign exchange would be more attractive than strings attached through a debt swap arrangement. Economically speaking, debt swaps are a fiction since money is fungible. However, the imperfect

^{16/} See E. Barandiaran and F. Larrain, op.cit., p. 18.

^{17/} See R. Nelson: "Debt/Conservation Swaps," unpublished internal World Bank memo dated November 17, 1987.

^{18/} See E. Barandiaran and F. Larrain, op. cit., p. 20.

functioning of some foreign exchange markets may limit the degree of fungibility of some moneys, thus making debt swaps attractive to some extent.

VI. DEBT SWAPS AND INEFFICIENCY ISSUES

63. Debt swaps may misallocate resources by earmarking the foreign exchange proceeds of capital inflows for the retirement of external debt. If the best use of foreign exchange for a country were in fact to repay some of its debt, then the earmarking would not be a problem.

64. A problem with DEBT-NATURE swaps relative to a cash deal is that with the former you have two unknowns: the conservation commitment and the valuation of the debt to deal with. With the latter you can concentrate on the conservation commitment fully. Add to this that the debtor has the lender over a barrel on the debt valuation side of the equation because only the debtor knows his own plans on debt repudiation.¹⁹ The immediate increase in the secondary debt market value of the Ecuadorian debt when the swap was about to be finalized illustrates this.²⁰

65. One may therefore ask whether it would be more efficient to forgive or write off heavily discounted debts via grant aid, rather than converting aid to equity in one form or another by means of the said swapping arrangements. Such options might be primarily applicable to government loans, while the swaps discussed so far primarily apply to private loans. Under all circumstances, an important issue would then be the effectiveness of project/program management. It is often claimed that better implementation discipline results if the funds spent are borrowed than if it is grant money.

66. Debt swaps may misallocate resources in the following ways by:²¹

- a. relying on preferential exchange rates, which may send the wrong signals for investments/land allocations; and
- b. earmarking the proceeds of foreign equity investments or returning flight capital for the repayment of foreign debt, thereby excluding other possible important uses.

67. This raises first of all the question of the appropriateness of using the foreign exchange rate to subsidize certain capital inflows, and secondly the appropriateness of employing the foreign exchange so gained to retire specific debt.

^{19/} See R. Nelson, op. cit., para. 3.

^{20/} Based on communication with former WWF officer.

^{21/} See D. L. Roberts and E. M. Remolona: "Debt Swaps: A Technique in Developing Country Finance," Chapter 6 in Economists Special Report No. 1104, op. cit., pp. 50-51.

68. A preferential rate for certain capital inflows ultimately penalizes exports and import substitutes and other sectors that earn and save foreign exchange, so that resources that otherwise would be invested for production of traded goods go elsewhere. It does not follow that an investment is good for the economy because it has been made profitable by means of a debt swap. It could in fact increase investments in protected sectors and lead to increased production distortions, and/or lead to depletion of foreign exchange reserves via "round-tripping," and to make things worse, capital and exchange rate controls introduced to protect official exchange reserves from such "round-tripping" may further weaken additionality and add to existing distortions in the economy.

69. It can also be argued that governments with a short time horizon could be tempted to speculate so as to improve their "discount rating" and on that basis seek to time their debt swaps so as to maximize short term gains. Good credit rating may thus become secondary to good "discount rating."

70. It is important when equity takes the form of land to be protected that the participants in the swap arrangement secure sufficient focus on project design and not concentrate all attention on the valuing of the debt. This may prove difficult when a central bank or finance ministry takes the main responsibility away from the technical ministry responsible for conservation, and may thus reduce the effectiveness of buying conservation.

71. Debt-equity/nature swaps may lead to significant foreign control of domestic land and natural resources which, depending mainly on the country's experience with direct foreign investments, could be viewed as a major source of conflict, thus limiting the scope for DEBT-NATURE swaps sharply.

VII. WHY ONLY "DEBT-NATURE" SWAPS IN FOCUS?

72. A key issue is whether the debt swap principle -- if acceptable -- should apply equally to other environmentally pressing issues where no land reserves are involved, and to other pressing welfare issues in LDCs (poverty alleviation, education, health, family planning, etc.).

73. It could well be argued that resources allocated for improvements in any of these social indicators could effectively contribute to less pressure on the tropical habitat. If such projects compete for limited resources with those made available through debt-nature swaps, the (possible) additionality of the swaps could be further reduced or eliminated. On the other hand, improvements in the said social indicators could also increase the pressures on the same tropical habitat through increased demands on the products provided by this habitat; the net environmental effect must be determined on a case-by-case basis.

74. It appears that the dominating rationale for concentrating debt swaps to equity in the form of natural reserves/tropical habitat is the aforementioned rich countries' demand for habitat preservation and these

countries' concern for the global commons. The apparent direct linkage between the debt problem and the threat to our global commons primarily provides for effective marketing and emotional appeal in the rich countries. It could prove more difficult to create a similar public response to other possible swap arrangements because of the lack of such apparent direct linkages, but just because environmental NGOs were first to use such swapping arrangements does not exclude other NGOs from seeking to arrange similar swaps for what they think should be given top priority.

75. Provided this is the true rationale, it appears the more important if aid agencies and donors are to be involved in debt for equity swaps that the distributional impacts of the swaps are properly accounted for and that aboriginal rights are properly protected.

VIII. ON THE ROLE OF THE WORLD BANK

76. The World Bank routinely works out incentives, regulations, penalties and policing requirements along with the associated budgets required for day-to-day operations of projects and programs. Genetic/tropical habitat preservation projects/programs are no different in this respect. However, in such environmental activities a great deal more needs to be understood and clarified regarding the underlying causes of resources depletion and the impacts on and the benefits to the affected aboriginal populations.

77. The Bank has a special responsibility in the development cooperation community in this context with its capacity, experience and competence available to assist LDCs in formulating pricing and incentive policies for more sustainable resources management. The Bank has a comprehensive mass of experience and data to draw on to recommend structural adjustments, institutional changes, incentive arrangements, removal of resources depleting price distortions and subsidies that directly and indirectly affect the choice of land uses, choice of resource extraction techniques, choice of outputs to be produced and the choice of inputs for that purpose.

78. The Bank could play an instrumental role in bringing forth the relative economic values of tropical forest land in different uses, inclusive of the negative externalities of agricultural use of such land and the positive externalities of maintaining a tropical forest.

79. In response to this challenge the World Bank's environmental work has now been reorganized to ensure that environmental issues are brought to the fore as early as possible in project preparation, sector work and national plans. The objective is to ensure that the Bank finances projects which are environmentally sound and which contribute to the preservation or improvement of the environment rather than its degradation.

80. There is a large number of options²² for World Bank (and other development banks) interventions to protect the rainforests of the world if the priorities suggest that resources should be allocated further towards

^{22/} See M. Dyson and J. Spears, op. cit., Annex II (enclosed).

this end. In addition to the menu of interventions already in existence, clarification should be sought on the desirability and feasibility of special World Bank concessionary environmental lending terms.²³

81. An added dimension on such habitat preservation issues is the vast spatial dimension often involved. This suggests that the World Bank consider a program rather than a conventional project approach for such cases.

82. In this context the Bank faces an important challenge in developing a sound understanding of the roles aboriginal populations and NGOs (local and international) play, and on how to integrate them actively from the early planning stage so as to pave the way for constructive sustainable local and national political acceptability and cooperation. This challenge requires a well planned multidisciplinary approach, and is all the more difficult because the debtor governments already feel severely overburdened with policy and structural reform programs requiring massive managerial and administrative monitoring manpower, and in many cases lag far behind in implementation.

83. In this connection it is clear that the Bank should not enter into new and complex agreements that are unlikely to succeed and that could later jeopardize the possibility of implementing agreements where crucial environmental issues are at stake.

84. One has to distinguish between debts owed to private banks or corporations from those owed to aid agencies in general, and to multilateral agencies and development banks in particular, and to determine the significance of the type of lender for the feasibility of conducting such swaps.

85. As mentioned earlier the additionality of such swaps are likely to diminish if they should take on a large scale. It could distort asset values in debtor countries and at the same time affect the country-specific discounts in the secondary debt markets. So long as only private debts are involved such effects are likely to be small and manageable, but if such swaps were to apply to public lenders and developing banks, a positive opportunity cost of the foreign exchange offered would clearly be perceived and the debtors would be less willing to accept the terms and the ties inherent in the debt-nature swap if other priorities were pressing.

86. The World Bank has a policy of not making loans to refinance existing debts. Providing assistance to others for the refinancing of existing debts raises serious legal and other issues which make it infeasible.²⁴ The Bank can undertake to finance environmentally sound projects and programs through its normal lending operations without the need for undertaking a debt-nature swap. As for the Bank's own loans, the

^{23/} See M. Koch-Weser: "Environmental Lending," World Bank office memo, November 6, 1987, and D. Beckmann: "An Environmental Fund," World Bank office memo, November 10, 1987.

^{24/} See I. F. I. Shihata: "Trading Accumulated Debt," World Bank office memo, November 19, 1987, paras. 6 and 7.

Bank's operations are based on the assumption that they will be fully paid in cash at the agreed time.

87. The Bank needs to consider its international credit rating and how it would be affected if the Bank were to allow for such swapping deals with World Bank loans. A negative impact on the Bank's outstanding position could have costly consequences for its overall lending. The proposed U.S.H.R. 3010 Bill "To Protect the World's Remaining Tropical Forests," Section 2(b), pp. 5-8, must be assessed in this light.

88. However, on a case-by-case basis, the Bank could possibly assist the debt-nature swap process by providing technical assistance and technical assistance loans in conjunction with other experts already involved in the area. Furthermore, the Bank could possibly provide technical information which may identify environmentally sound projects on the basis of which these transactions could be carried out by others.

IX. CONCLUDING REMARKS

89. While the World Bank should be very enthusiastic and creative in encouraging cash for conservation deals (soft loans) and at the same time assist in determining the most efficient environmental preservation program options, debt-nature swaps involving World Bank loans cannot be part of the menu of options, but in specific cases the Bank could provide technical assistance for swaps involving private debt.

90. There appear to be good political, psychological, marketing and perhaps financial reasons to link debt relief to habitat preservation crisis.

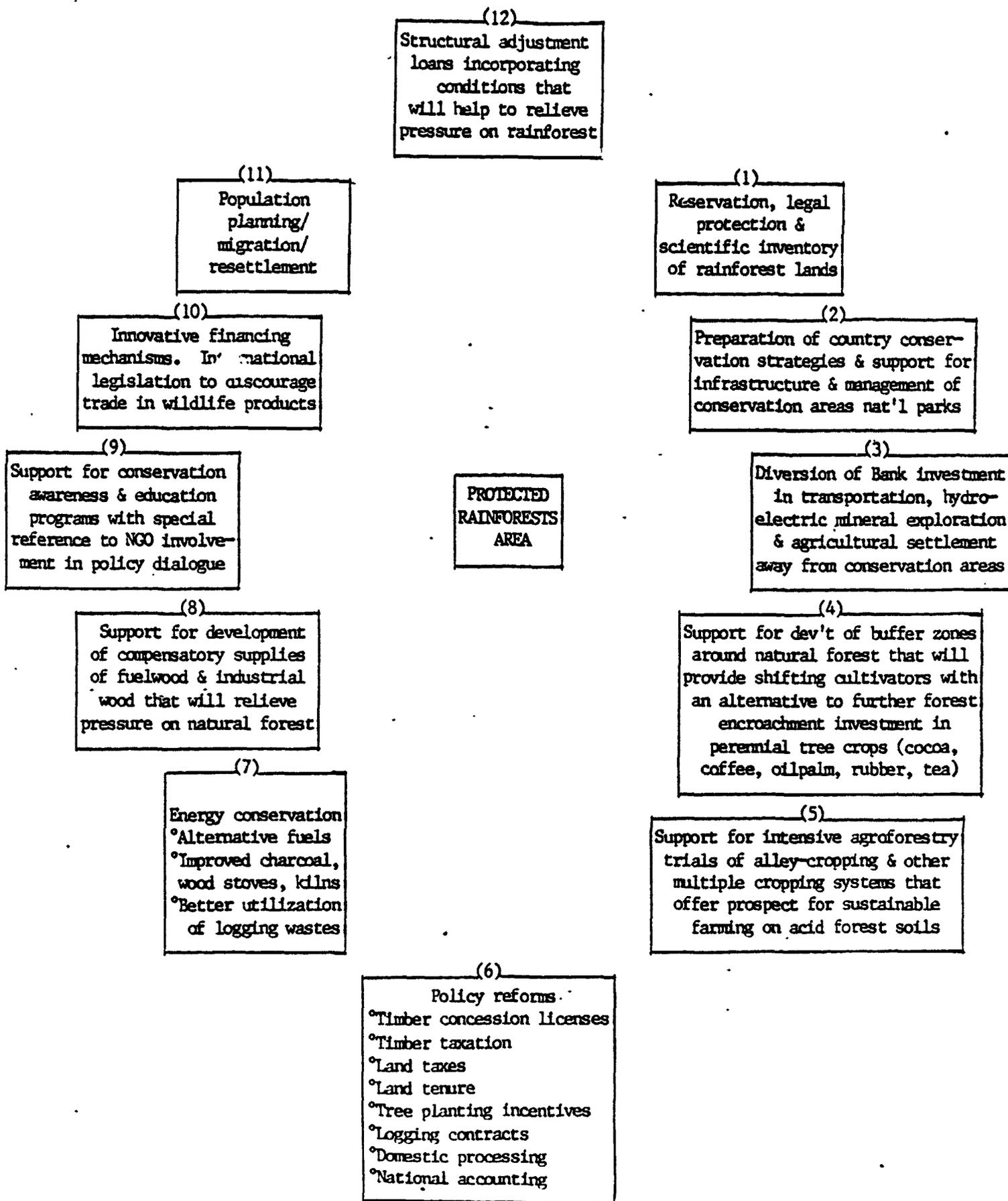
91. However, mixing the potentially strong economic forces for trade in habitat preservation from poor to rich countries with alleviating the debt crisis of some LDCs could sidetrack from the real issues and pave way for serious distortion with long term adverse efficiency and distributional impacts in the debtor countries.

92. So long as the amounts at stake are marginal and clearly perceived as additional by the LDC government, such tying may prove quite acceptable because the opportunity cost of such freed funds is very low. Once such swap operations take on a larger scale, however, additivity may no longer be that obvious to the government and the opportunity cost of the deal is increased. As a result such debt for nature adjustments cannot realistically be counted on to turn the tide.

93. Perhaps the most important contribution of aggressive promotion of such swap cases will be the awakening of policy- and decision-makers around the world to the accelerating growth of unsustainable environmental management practices, along with an increased awareness of the opportunity costs of the rapidly diminishing renewable natural resources of these countries. Such awakening may in turn lead to a changed political climate for environmental management in general and increased scope for international cooperation in this area.

94. The innovative strength of the many NGOs engaged in habitat preservation work in LDCs should, however, be further stimulated. The debt-nature swap concept is clear proof of the wealth of new ideas arising out of such initiatives, and stimulates the overall debate on much needed options to save our common tropical habitat in a most productive way.

AN "AROUND-THE-CLOCK" ACTION PROGRAM FOR SAVING TROPICAL RAINFOREST



Source: J. Spears: "Options for World Bank Intervention to Protect Tropical Rainforests", Mimeograph, World Bank, Washington, D.C., February 1988.

ANNEX 2

CHARACTERISTICS OF A POOR AND HEAVILY DEBT BURDENED
DEVELOPING COUNTRY WITH TROPICAL FOREST RESOURCES

A1. The country in question is faced with a situation in which it finds it economically advantageous to harvest the tropical forest at a rate leading to deforestation compared to preserving it or to harvest a sustainable yield.

A2. Let X represent GDP, K be production capital, N labor force and H_p the tropical forest capital from a production point of view. For simplicity assume a homogenous production function as follows:

$$(1) \quad X = A.N^a.K^b.H_p^{1-a-b}$$

A3. Increased production X requires increased harvesting from the tropical forest represented by the harvesting function $h_p(X)$ per year. The natural regeneration rate of the tropical forest is $g_p(H_p)$ per year. Consequently the tropical forest production capital will develop as follows over time:

$$(2) \quad \frac{dH_p}{dt} = \begin{cases} g_p(H_p) - h_p(X) & \text{if } g_p < h_p \\ 0 & \text{" } g_p > h_p \end{cases}$$

A4. The country has borrowed money abroad at time t_0 to expand its production capacity and associated infrastructure faster than what would be possible on the basis of domestic savings alone. Let G_0 denominate this foreign debt, let D denote annual depreciation and let r be the interest rate on the loan. Assume further that all imports are production capital K and that all K is imported. Let annual exports be Y and assume foreign trade in balance at all times from the time of borrowing, t_0 . Assume that only interest payments are to be serviced and the following equation for net capital accumulation results:

$$(3) \quad I = \frac{dK}{dt} = Y - D - r.G_0$$

A5. Assume further that the tropical forest as a natural resource also provides utility in the form of a "household value" to the population in addition to providing for income. The consuming population N_p is a multiple of the labor force; $n.N$ where n is a constant.

A6. Per capita utility in this country can then be represented as follows:

$$(4) \quad U \left(\frac{X - Y}{N_0}, H_0 \right)$$

It is the forest stock H_0 that gives "household value" in this case. Reduced forest stock thus affects utility negatively.

A7. Assume that H_0 develops over time in a way similar to that of H_p in (2) above;

$$(5) \quad \frac{dH_0}{dt} = \begin{cases} g_0(H_0) - h_0(X) & \text{when } g_0 < h_0 \\ 0 & \text{when } g_0 > h_0 \end{cases}$$

A8. Assume that consumers plan their future by maximizing their discounted utility and that they apply the discount rate z in this context:

$$(6) \quad \int_{t_0}^{\infty} e^{-z(t-t_0)} U \left(\frac{X - Y}{N_0}, H_0 \right) dt$$

subject to the constraints (1), (2), (3) and (5).

A9. Assume an exogenously determined population growth, and $X(t)$ is determined along with its initial value $X(t_0)$.

A10. Since the country in question is a poor LDC the average consumer derives his primary utility from his subsistence level income based consumption bundle

$$\frac{X - Y}{N_0}$$

in the nearest future, and will have a high discount rate z as basis for his choices.

A11. To begin with the changes in dH_0 are so small that the reductions in H_0 are hardly noticeable for the consumer. However, with $g_0 < h_0$ the rate of depreciation of H_0 accelerates, and after some time H_0 will have reached a critically low level with severe disutility impact on the consumers.

A12. The point is that the negative utility effects (reduced value to the households) from reduced forest stock come gradually and will not strike fully in the utility function for many years. Combined with the high individual discount rate, the rational consumer can hardly be blamed for not choosing to preserve the tropical forest.