

imagine American or Soviet military officers agreeing to a "bring your own bomb" project of this kind. Yet this is the subject of current negotiations.

Whether or not CORRTX is a red herring, as Cochran argues, or a matter of genuine disagreement among experts, it is clear that the Administration is annoyed with the Soviets for having made a private agreement with the NRDC. U.S. State Department officials have said repeatedly that they would prefer to keep all discussions of test monitoring on a "government-to-gov-

ernment basis," and privately they complain that by cooperating with the NRDC, the Soviets are making an "end run" around the talks in Geneva. Those talks broke off for the summer on 20 July, reporting no significant progress.

Meanwhile, the NRDC thinks it has found a way to provide the Soviets with direct access to the seismic data from Nevada, even if Soviet scientists cannot get visas. They hope to install telemetry devices that will transmit the information instantaneously by satellite to Moscow.

By the fall, NRDC scientists should be receiving highly detailed information about the seismic features of the rock underlying the Semipalatinsk site, and the Soviets will begin getting high-quality seismic data from the stations in Nevada and California. Unless the military players intervene, many objections to using seismic signals for enforcing a nuclear test limit may be removed. It is also possible, however, that official distrust could choke the program before the seismologists get the information they need. ■ **ELIOT MARSHALL**

Bolivia Swaps Debt for Conservation

Purchase of portion of debt at discount by U.S. group permits creation of conservation buffer zone for reserve

BOLIVIA is the first developing country to agree to a plan under which its foreign debt is being reduced in return for action to preserve a specific tract of ecologically valuable land. Under an agreement negotiated with the Bolivian government, nearly 4 million acres of forest and grassland in the Beni River region in the Amazonian basin will be protected.

The financial crux of the agreement with Bolivia is the purchase by an American environmental group of \$650,000 of Bolivia's external debt for \$100,000, about 15 cents on the dollar. Under the agreement, Bolivia will be able to write off the entire \$650,000. A market for such purchases exists because some heavily indebted developing countries may not be able to pay off their loans and commercial banks are therefore willing to settle for a percentage of the face value of the loans.

The loan funds involved in the agreement with Bolivia were held by private lenders. Major U.S. environmental organizations are urging Congress to pass legislation that would encourage government-backed international financial institutions such as the World Bank to experiment with such transactions, which would expand these novel debt-for-conservation exchanges.

The key matchmaking role in the agreement with Bolivia was played by Conservation International, a Washington-based environmental organization acting through Citicorp Investment Bank, a Citibank sub-

sidiary, which arranged the purchase from unnamed overseas debt holders. The \$100,000 to finance the swap came from the Frank Weeden Foundation, a private family foundation based in San Francisco. Donald Weeden, director of the foundation, has indicated that the foundation has allocated a total of \$300,000 for such projects. A group of environmental organizations are currently collaborating to negotiate a similar exchange in Costa Rica.

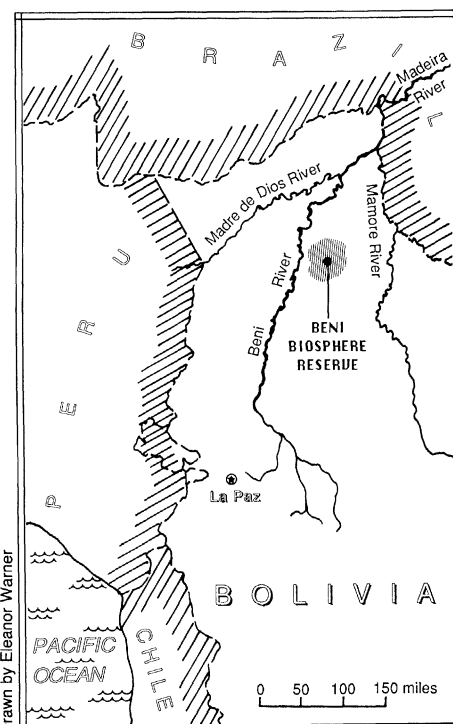
Proponents hope that the "debt-for-nature" swaps will be taken up by other Third World countries that have a heavy burden of foreign debt and are suffering rapid environmental degradation as a result of development projects poorly adapted to fragile tropical ecosystems.

The Bolivian government has agreed to protect by law three parcels of land adjoining the existing 334,000-acre Beni Biosphere Reserve that was created in 1982 as a model reserve to protect animal, plant, and water resources and native peoples. Part of the area covered by the agreement will be maintained undisturbed for research. Another portion will be used by the nomadic Chimane Indians and will be opened to carefully managed agricultural and forestry development.

An effort to apply the principle to the public sector has led to the introduction of bills by Senator Robert W. Kasten, Jr. (R-WI), and Representative John Porter (R-IL). The bills call on the World Bank and

other multilateral development banks to allow developing countries to repay part of their debt by investing in conservation programs. The major provision encourages the banks to conduct pilot programs establishing "conservation easements" to protect tropical forests and wetlands in return for suspension or rescheduling of some or all of the country's debt repayments to the banks while the easements are in effect. Representative David R. Obey (D-WI) last week attached an abbreviated version of the measure to the House foreign operations appropriations bill.

One hurdle to the initiative is that the United States, although the largest shareholder in the World Bank and other multilateral banks, holds a minority position on



Buffer. Shaded area around Beni reserve indicates newly purchased land.

the banks' governing boards, so whatever Congress approves will not automatically change bank policy. An even greater obstacle is likely to be a policy of all the multilateral banks that prohibits them from rescheduling or canceling debts. This has been regarded as a main prop of the banks' highly favorable credit rating in international financial markets. The U.S. Treasury has so far taken no formal position on the debt-for-nature idea, but is said to have no objection to its use with commercial loans, but to be squarely opposed to its application in the public sector.

Environmentalists recognize that bank policy is in conflict with the debt swap principle. However, they cite the new emphasis by the World Bank on environmental aspects of development projects (*Science*, 15 May 1987, p. 769) and argue that the improved long-term prospects for development promised by the swaps justify a change in policy.

The debt swap device appears to have evolved as part of the campaign by U.S. environmentalists to persuade the World Bank and other multilateral lending organizations to improve their handling of environmental aspects of development projects (*Science*, 14 November 1986, p. 813). The idea of trading Third World debt for conservation undertakings—generally credited to Thomas E. Lovejoy, executive vice president of the World Wildlife Fund—has prompted a search by the environmentalists for innovative financing mechanisms.

According to Barbara J. Bramble, who has been active in the push to adapt the debt purchase mechanism for conservation purposes, it has not been a practical possibility until recent years. Bramble, director of the international program of the National Wildlife Federation, says that the opportunity developed only since the Third World debt crisis has deepened, the secondary market for such debt at a discount has grown, and a number of agents willing to arrange the purchase of discounted loans has emerged.

Although Conservation International scored a first by completing the debt swap agreement with Bolivia, it was hardly an impulse buy. The 8-month negotiations that produced the agreement were based on a history of cooperation among the people involved for a number of years. Conservation International is a new organization, but was established by former members of the staff of the Nature Conservancy who had been engaged in creating the Beni reserve in the early 1980s.

Sumner Pingree of Conservation International says that "the strength of the deal is based on relations with the Bolivians." The Americans made and maintained wide ac-

quaintanceships among Bolivians concerned about environmental issues, including Victor Paz Estenssoro, the current Bolivian president.

What are the guarantees that debt swap agreements will be kept over the long haul? Pingree says that Conservation International recognized that there are no ironclad guarantees in such an undertaking and accordingly tried to make the agreement as strong as possible. The legal structure for the conservation provisions is firmer than is often the case in developing countries. An endowment equivalent to \$250,000 in local currency was created under the agreement for management of the area. Crucial to the long-term prospects of the project, Pingree said, is to "build private sector capacity to act as a catalyst for government action."

Briefing:

Proposed Growth in U.K. Space Budget Rejected

Prime Minister Margaret Thatcher has turned down a proposal from the British National Space Center, the recently created body that coordinates all government-sponsored space activities, for a major increase in the nation's space budget.

In a report outlining a 15-year future strategy presented to the government last July, the BNSC had proposed that the space budget be doubled over the next few years from its current level of about \$160 million a year. It pointed out that this would be in line with commitments already made by other member states of the European Space Agency, and was, for example, necessary for full European participation in the U.S. space station.

However, Thatcher, apparently acting on advice coming primarily from the British Treasury, told the House of Commons last week that there would be no immediate increase in the space budget. In rejecting the BNSC's plans, she said that any extra funding for space projects would have to be found in the private sector. ■ D.D.

Comings and Goings

Representative Marilyn Lloyd (D-TN), chairman of the House subcommittee on energy research and development since 1981, is retiring from Congress when her term expires in December of 1988.

Robert O. Hunter, Jr., president of Western Research Corporation of San Die-

The \$650,000 reduction is obviously a drop in the bucket of Bolivia's external debt, which totals \$4 billion. And the consensus among environmentalists is that the debt-for-nature swap is a useful but limited device when restricted to private financial dealings. Proposals are being shaped to change U.S. tax law to provide tax credits for commercial banks that write down debts for developing countries that agree to conservation measures in return. And efforts are under way to persuade corporations operating in developing countries and holding local currencies that cannot be converted to foreign exchange to use it for similar purposes. So it is clear that ingenious ideas for turning at least part of the mountainous Third World debt into quid pro quos for conservation are far from exhausted. ■ JOHN WALSH

go, is President Reagan's nominee to head the Department of Energy's Office of Energy Research. Hunter, who still must be confirmed by the Senate, would replace Alvin W. Trivelpiece. Trivelpiece left in April to become executive officer of the American Association for the Advancement of Science.

William A. Wallenmeyer, director of high energy physics at the Department of Energy, is moving to the Southern Universities Research Association (SURA). Wallenmeyer is taking over for the organization's outgoing president, Harry D. Holmgren, who is returning to the University of Maryland after 5 years at SURA. ■ M.C.

Peer Review and ARS

A committee of the National Academy of Sciences has urged the head of the Agricultural Research Service (ARS) to shake up the service's peer review system. In a report* that is by implication highly critical of current practices, the committee notes that peer review does not directly influence whether, or at what levels, in-house ARS research projects are funded. Nor does it directly affect hiring, promotion, or tenure of ARS scientists. Reviews serve chiefly to check the quality of projects that ARS is already funding or intends to fund.

The report recommends that the results of peer review be used to help allocate research funds and influence promotions. It also makes the radical suggestion that some ARS research funds in identified areas be allocated through competition on the basis of peer review. ■ C.N.

**Improving Research Through Peer Review*, Board on Agriculture, National Research Council.