UN at Odds over Science Center

The fate of a $250 million fund for Third World science is uncertain due to bickering over staffing of a UN policy unit

One key result of the United Nations Conference on Science and Technology for Development (UNCSTD), held last August in Vienna, was the move to establish a $250 million fund to be spent for the furtherance of Third World science and technology. Formal approval of the fund recently took place at UN headquarters in New York, but it may turn out to be approval in name alone.

Internal bickering over who will help administer the fund through a new policy unit threatens to keep the industrialized North, most notably the United States, from contributing to a UN pledging conference for the fund this March. North and South are at odds over what appears to be an insignificant issue—fine adjustments in the sprawling UN bureaucracy. It has thus been suggested that the North is using the fracas as an excuse to back out of the Vienna agreements.

These agreements were modest to begin with, relative to the scale and intransigeance of the problems. Aside from the proposed fund, they included a new intergovernmental committee to add to the existing regiments of the United Nations, but with a stronger voice for the Third World; plans for international information networks of science and technology; and a promised search for an assured system for financing the transition of the developing countries to substantial self-reliance in science and technology.

Problems with the program developed on 19 December when the UN General Assembly approved the Vienna accords. As is often the case, the resolution passed without a formal vote. Prior to adoption, however, a vote was taken on the issue of the policy unit and its staff, the lone negative vote coming from the United States.

In explanation, a U.S. ambassador to the UN, William J. Vanden Heuvel, said that last-minute maneuvering by Third World interests had breached an "understanding" on this critical issue. "This ominous sign," he told the General Assembly, "had endangered an important opportunity for progress, and a larger issue has been left behind for all of us to ponder." At the time it was unclear whether or not he was referring to the fate of the $250 million fund. Yet Jean Wilkowski, the U.S. ambassador to UNCSTD, recently said at the AAAS annual meeting in San Francisco that the United States is rethinking its commitment (usually put at $50 million over 2 years) to the March pledging session.

To pull back on the fund at this point represents no small change of heart, and what brought it about strikes many observers as curious. Upsetting the U.S. delegation is the creation of seven new positions in the new UN policy unit that will carry out the UNCSTD recommendations, seven positions that will be filled with representatives from the Third World.

That so seemingly innocuous an issue as staffing can threaten the implementation of the UNCSTD accords says much about the current state of the North-South dialogue. From the outset, the developed nations were less than excited about infusing funds for science and technology into the Third World, or about increasing the effective decision-making capability of developing countries within the UN. Is the United States now looking for a way out? "I'm sure there is a temptation to do so," said one State Department official. "It is hard to come through with any kind of money these days. When you have a fracas in New York you can always point to that

Carter Awards Science Medal

The President awarded the National Medal of Science, the highest honor the Federal Government accords the nation's scientists and engineers, to 20 researchers at a White House ceremony on 14 January. The recipients are:

Robert H. Burris, professor of biochemistry, University of Wisconsin;
Elizabeth C. Crosby, professor of anatomy, University of Michigan;
Joseph L. Doob, professor of mathematics, University of Illinois, Urbana;
Richard P. Feynman, professor of physics, California Institute of Technology;
Donald E. Knuth, professor of computer science, Stanford University;
Arthur Kornberg, professor of biochemistry, Stanford University;
Emmett N. Leith, professor of Electrical Engineering, University of Michigan;
Herman F. Mark, professor of chemistry, Polytechnic Institute of New York, Brooklyn;
Raymond D. Mindlin, professor of applied science, Columbia University;
Robert N. Noyce, chairman, Intel Corporation, Santa Clara, California;
Severo Ochoa, Roche Institute of Molecular Biology, Nutley, New Jersey;
Earl R. Parker, professor of metallurgy, University of California, Berkeley;
Edward M. Purcell, professor of physics, Harvard University;
Simon Ramo, vice chairman of the board, TRW, Inc., Redondo Beach, California;
John H. Sinfelt, scientific adviser, EXXON Corporate Research Laboratories, Linden, New Jersey;
Lyman Spitzer, Jr., professor of anatomy, Princeton University;
Earl. R. Stadtman, chief, Laboratory of Biochemistry, National Heart, Lung, and Blood Institute, National Institutes of Health;
George L. Stebbins, Jr., professor of genetics, University of California, Davis;
Paul A. Weiss, Rockefeller University; and
Victor F. Weisskopf, professor of physics, Massachusetts Institute of Technology.

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as being the cause of your difficulties rather than admitting you have problems coming up with the money."

The squabble started in the UN "fifth" or financial committee. Up to that point, negotiators in other UN committees had agreed that the new policy unit would be called the Center for Science and Technology for Development and that it would be headed by an Assistant Secretary General, who in turn would report to the Director General for Development and International Economic cooperation, Kenneth Dadzie. It was understood by the developed countries that the staff of the new center would come from the present UN Office of Science and Technology (OST), which has a staff of eight to ten. But in the fifth committee, which is rather late in the bureaucratic game, Third World representatives squeezed in seven positions in addition to the OST staff.

When the General Assembly voted on the part of the resolution concerning the new center, the United States and others objected. Australia, Canada, and Japan, all of whom had backed the proposed center in the second committee, abstained on the vote. Their common complaint was that they had been tricked by last-minute maneuvers and that the new positions were not needed. Said the Canadian ambassador: "We deplore the fact that, at a time when my government is trying to cut 40,000 jobs from our civil-service rolls, we are here creating positions without specific justification in fact." The developed countries also complained that the jobs were merely a payoff for people who had worked on the staff of Frank Joao da Costa, the Brazilian who was Secretary General of UNCSTD. "We deplore," said the Canadian ambassador to the General Assembly, "this perpetuation of the inane personalization of work which marred the conference from the start."

Answering these attacks was B. C. Mishra, one of India's ambassadors to the UN and chairman of the bloc of 120 or so emerging nations known as the Group of 77. He denied that personal interests were involved and said, in short, that the new appointments were needed.

An unstated but nonetheless real issue in the debate is that developing countries distrust the existing UN bureaucracy. New staff to them means new ideological input as well. But now that the OST staff will be joined by seven others of a different ideological stripe, some observers are worried. Said one State Department official: "There has been considerable friction between these people in the past,

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Fear of Spies Cuts Short Industry Tour

A funny thing happened on a recent AAAS-sponsored visit to "silicon" valley in California, where 100 or so companies a half-hour drive south of San Francisco are pressing home the revolution in microelectronics. One of the companies turned away a tour bus.

The incident is clearly not a big deal, but it does illustrate how a creative and very competitive industry can turn a bit paranoid.

It all began this past fall, when arrangements for a half-day tour of the Hewlett-Packard integrated circuit processing laboratory and a similar lab at Fairchild Camera were being made. The tour was to be held during the AAAS annual meeting in January. Fairchild requested that advance registrants note their citizenship. AAAS agreed, and put the request on the advance registration forms printed in *Science*. Fairchild later requested that no foreign nationals be allowed to tour their facility. AAAS said no, that the international scope of the meeting made that impossible. Arrangements were left up in the air, though on paper the two-company tour stayed as planned. After the tour bus actually pulled out from the San Francisco Hilton, however, it got only as far as Hewlett-Packard. The tour of Fairchild had been canceled. Fairchild now says that the bus was behind schedule and could not have been accommodated in time. People on the bus disagree, and say they think that Fairchild was afraid of spies.

Fear of industrial espionage is probably not unfounded. It has long been alleged that the Japanese have walked away with hard-won U.S. designs and then used them to produce their own silicon circuits. As the complexity of the chips has increased during the past decade, this has become a sensitive issue. Three or four years may now go into the design and debugging of a complex integrated circuit no larger than a match head that contains a hundred thousand transistors. Companies are understandably interested in protecting their investment.

Fairchild is especially sensitive to the loss of new ideas and designs. Integrated circuits were invented at Fairchild in the late 1950's, though the company was slow to capitalize on the potential of the devices and of the research team that developed them. A brain drain soon followed, many of the talented engineers and chemists leaving Fairchild to form their own companies, such as Intel Corporation.

If industrial spying becomes more profitable as circuits become smaller and more complex, company executives may have a lot of hand-wringing ahead of them. Several speakers at a AAAS symposium back at the Hilton forecast that existing technology will soon allow up to one million components to be etched onto a tiny chip of silicon. In another 10 years or so, according to Gordon E. Moore, chairman of Intel Corporation, the figure will be something like a billion.

At that point, he said, the physical limits of storing information in matter may be reached. "Once you get down to circuit elements a few tens of atoms across, you cannot do electronics." He noted that such circuits may eventually exceed the complexity, if not the flexibility, of brain tissue.

Watching for spies may sound exciting, but according to Moore most of the industry's day-to-day effort goes into avoiding defects. A small nick in a single transistor means an entire chip containing a hundred thousand good transistors must be discarded. Finding a defect can be a headache. If an integrated circuit were imagined to be the size of a football field, a defect would be the size of a quarter.

Even after painstaking redesign of a circuit to eliminate defects, results are often so-so. Only about 20 percent of the chips that come out of a well-established manufacturing process are perfect. With new circuits, about 1 percent work properly.

Despite problems, success has been overwhelming. Where will the revolution lead? Speakers at the symposium were anything but certain. One clear fact that did emerge was that demand for graduate students has outstripped supply. The starting salary in the industry for even an inexperienced Ph.D. is $30,000. Moore said optimistic estimates say the number of qualified graduate students will remain about level, while demand for their services will grow exponentially during the 1980's.

This dearth of technical talent has made for much job-hopping in the in-

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so we're concerned about the effectiveness of any future operation where they are supposed to work together in concert."

These fears may be a bit overstated. The new center or even the intergovernmental committee will not directly oversee the $250 million fund, so that staff conflicts, should they develop, will not necessarily affect the funding process. It is the United Nations Development Program, a totally independent organization within the UN, that will disburse the $250 million "interim fund" which the Vienna conference agreed should be set up prior to the establishment of a long-term financing system. The center is strictly advisory.

Officials at State nonetheless say they are keeping a close watch on who will be appointed head of the new center. "If it is a person who has been on the political side of it rather than a person with established credentials," said one, "that will be hard for us to accept."

Though an epidemic of second thoughts seems to have broken out among U.S. officials, the Administration stance is to back the UNCSTD accords, and the Office of Management and Budget is said to have recently been persuaded to back the financial aspects as well. Just how this will translate into numbers is unclear, however. Officials at State are quick to point to President Carter's recent decision to raise the defense budget by more than 25 percent over inflation in the next 5 years. There may not be room in the overall budget, they suggest, for more support of Third World science and technology.

Another problem is Congress. Even if the Administration comes through at the UN pledging conference in March, the contribution must be ratified on Capitol Hill, and the mood there has been anything but responsive. Administration officials are still trying to salvage plans for a U.S. Institute for Scientific and Technical Cooperation (ISTC) that had been a centerpiece of U.S. presentations at the Vienna conference. The Senate had refused funds for the institute in June (*Science*, 6 July 1979). The House has now agreed that funds for the institute should be provided, but so far a Senate-House conference committee has failed to come to an agreement. The battle over the Vienna accords may be even tougher. While a handful of U.S. congressmen were present at the conference, few have even heard of UNCSTD or what it proposes to do.

Even UN officials share in the gloom. They note that with the tense situations in Iran and Afghanistan, the world climate for international cooperation has considerably eroded since August. At

Religious Groups Unite Behind Banner of

Wasting energy is definitely contrary to God's will, but this country is sorely in need of a "new theology" that promotes the values of conservation and renewable energy sources. That was the message of an unusual meeting held in Washington on 10 January on "Religion and Energy in the '80s." Inaugurated at a White House breakfast featuring President Carter and Energy Secretary Charles Duncan, the meeting was attended by about 150 representatives of the Protestant, Catholic, Orthodox, and Jewish faiths.

No major politician, with the possible exception of California Governor Jerry Brown, has tried seriously to confront the citizenry with the notion that finite resources inevitably mean changes in life-styles. So now it seems religious groups are preparing to assume the responsibility. And while they do not have the television networks at their command, there is a not inconsiderable audience out there in the churches and synagogues.

According to a spokesman for the National Council of Churches (NCC), the main sponsor, the meeting had its genesis last July when Jimmy Carter summoned a stream of people from all walks of life up to the mountaintop at Camp David to figure out what to do about the national malaise.

This month's meeting had the blessings of Carter, who was reportedly very eloquent at the breakfast, describing how conservation might improve the quality of life by fostering a new sense of community. Duncan, too, encouraged the clerics—sounding "more outspoken on conservation than Schlesinger ever was," according to one participant.

The rest of the meeting ranged from lofty moralizing about the "theological imperatives" of energy to homely talk about weatherizing churches in Connecticut.

Although energy policy has caused furious debate among various Protestant denominations, it appeared at the meeting that all three major religious groups had finally coalesced around an energy ethic that features conservation as the number one concern. Closely following is emphasis on development of renewable resources and on choices that will enhance employment opportunities and not penalize the poor.

All that is needed now, according to the main speakers, is a new theology that promotes these objectives. "We operate with a theology that makes it difficult for us to confront" the energy problem, said Elizabeth Bettenhausen, associate professor at Boston University School of Theology. She said one of the difficulties is that many Christians still regard this earth as unimportant since it is only a temporary stop on the way to heaven. Another negative factor she cited was the idea that America is made up of God's chosen people—that "God loves America in a peculiar way . . . so God will take care of everything including the limitations on natural resources." The notion that God sets limits, she noted, contradicts 250 years in which the consciousness of Americans was molded by the limitless frontier.

Rabbi Walter Wurzburger quite agreed that we need to "create the kind of theology that makes us responsible custodians of limited resources" and suggested that Judaism, with its emphasis on living in the here and now and prohibitions on waste, offered appropriate guidance. The Catholic representative, William Millerd, S.J., added that if we are seeking energy modes that fill human needs, conservation and renewable energy are desirable because they provide more employment than capital-intensive energy sources. Harold Bennett of the Southern Baptist Convention weighed in with a call for "an ethic of parsimony." The theme predominating in these talks was that when God gave man "dominion" over the earth, He did not mean man was supposed to "dominate"

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the conference in Vienna, it was hoped that the oil-producing developing countries would make a significant contribution to the fund. No one now seems to be sure where they stand. UN officials say they are optimistic that voluntary contributions from all countries will at least total $100 million for the years 1980 and 1981, but this figure includes a large donation from the United States, which now seems anything but certain.

If the conference in Vienna accomplished little else, it pounded home the fact that three-fourths of the world's people conduct only 3 percent of the world's research and development. In what many regard as a politically naïve attempt at cure, the Group of 77 called for a $2 to $4 billion fund to help heal the rift between developed and developing countries. After two weeks of debate, an interim fund of $250 million was proposed.

That the North might be tempted to further compromise the financial side of the Vienna agreements should come as no surprise. After all, what does it have to gain? In the most basic terms of the North-South dialogue, it stands only to have its pockets picked, since it is cast in the role of donor rather than receiver. And with domestic economic ills taking an ever-greater toll, developed nations are reluctant to provide funds for Third World development.

But in an indirect way, the North, and especially the United States, stands to gain much. The industrialized nations need access to the markets and raw materials of developing countries. Of the total U.S. imports, more than 45 percent come from the Third World. "Power today," says Wilkowski, "does not necessarily come from traditional sources, such as armies, navies, and military weapons. Rather it can come from valuable resources, petroleum being the most obvious." And the United States sells more manufactured goods to the Third World than to the entire European community, Eastern Europe, and Soviet Union combined. The Third World is a $42 billion market the United States can ill afford to lose or ignore.

And following events in Iran, Nicaragua, and elsewhere, developed countries are realizing anew that they need to keep some handle on the forms of development followed by Third World countries, and not just for access to markets and raw materials.

That science and technology are high cards in the new international political economy can no longer be in doubt, given the clamor for it at Vienna. It seems in the best interest of the North to look at the issue less as one of foreign aid and more as one of foreign policy.

—WILLIAM J. BROAD

Conservation, Renewable Energy Sources

and gobble everything up. He meant it was man's responsibility to exercise careful stewardship over resources.

There are probably few public officials whose outlook so closely conforms to God's as Denis Hayes. Hayes, organizer of the 1970 Earth Day and now director of the Solar Energy Research Institute (SERI) in Golden, Colorado, buoyantly expressed the hope that SERI "will become for energy policy what NASA has become for space." Pricing determines what energy choices are made but the "biases in the market are staggering," he said. Federal, state, and local governments, for example, subsidize nonrenewable energy sources to the tune of $13.5 billion a year, leaving $0.5 billion for renewable ones. Yet if the government ceased treating energy technologies as "neutral and interchangeable" and instead eyed them for nonmonetary "values" such as safety, accessibility, and benign social and environmental effects, it would see that it is backing the wrong horses.

The talk of values that always accompanies talk of soft, or alternative, or nonrenewable energy is symptomatic of the fact that ethical considerations have only recently penetrated some areas of national discussion. The civil rights and war movements awoke Americans to reassessing their moral and ethical assumptions. Many a university stock portfolio was reshuffled as a result of pressures to have investment policies conform with goals of humanitarianism and social justice. Now these righteous preoccupations have spread to energy under the heading of "ecological justice"—defined in an NCC pamphlet as "equity for all members of the community of life within the sustainable boundaries of the biosphere."

A stockholder action for ecological justice is being supported by the Interfaith Center for Corporate Responsibility, a group sponsored by the NCC. According to director Timothy Smith, 12 utility companies across the land are to be petitioned by religious groups that are also shareholders to add three items to the ballot at the annual shareholders meeting: people will vote on whether to have the company look harder for alternative (that is, renewable) energy sources, to put greater emphasis on energy conservation, and to stop all development on nuclear plants.

Energy has been a focus of the NCC's moral concern since 1976, when it issued a resolution calling for a ban on plutonium reprocessing and its use for energy production. Last May it issued its own energy policy, proconservation and antinuclear, which failed to pass the board in 1978 but which was jolted through following the trauma of Three Mile Island. The NCC has long been at odds with the Atomic Industrial Forum, with which it had what Carl Goldstein of the AIF calls a "long arduous debate" last year. Goldstein says the debates staged by the NCC have been "badly skewed" against all the conventional nonrenewable energy sources, and he feels members of the organization are "turning their backs on energy needs."

Church groups have made it clear that ecological justice, whether or not a "new theology" is developed, is now to be regarded as part of their mission. With the resurgence of religion in this country, that old-fashioned term "sin," which has been drowned in the currents of moral relativism, is making a comeback. A phrase in the NCC booklet on energy and ethics proclaims that humanity's "perversion of dominion into domination [of nature] is a sin and it is one of the underlying causes of the energy crisis." The new religious movements of the past decade have stressed exploration of the inner person. But as human dependence on the fragile biosphere becomes ever more apparent, movements of the 1980's may look more like neo-Pantheism.—CONSTANCE HOLDEN