percent of the flies in the environment. This suggests that perhaps as many as 100,000 Peruvian flies were improperly treated and then released in Mountain View. As a precaution, California has stopped using Peruvian flies for the time being.

When the scientists running the fly-release program checked their records, they found that Peruvian flies of the right vintage were released in Mountain View as a preventive measure in June. This led some to conclude that the Mountain View infestation was entirely a man-made event, not evidence that the flies had successfully evaded the ground spraying program.

Indeed, both Hagen and Dahlsten say that state officials were pleased with the way the eradication program was going in late June. Apparently the state was on the verge of declaring it a success when the new outbreak of larvae was spotted in Mountain View. Because officials are still a bit uncertain of the true dimensions of the problem, they have agreed to step up the attack by using aerial spraying. Hagen and Dahlsten think that this drastic measure is not necessary, although on this point they are at odds with most of the agricultural community.

The advantage of aerial spraying is simply that it is faster than other techniques. State officials have already been spraying the infested area with Medfly bait (a protein similar to the natural secretion of aphids, known as "honeydew," on which adult Medflies feed) mixed with malathion. When the flies hatch from the ground, they immediately look for a meal of honeydew; then they mate. The malathion kills them before they lay eggs. With aerial spraying, the pest fighters can move farther and faster against the Medflies, covering a 120-square-mile area (as they hope to do) with six fresh blankets of bait in one hatching period. The poison must be fresh, because it loses its potency after a few days in the sun.

The disadvantage of aerial spraying is that it is expensive and indiscriminate. In this case, large quantities of poison (though at lower concentrations per acre than in any previous case) will be sprayed over a suburban area, covering lawns, cars, pools, houses, and playgrounds. The poison can be washed off with water, and it breaks down in a relatively short time, but spraying it in the suburbs is not without risk.

There is no evidence that malathion spray poses a quantifiable health hazard to humans. One California state geneticist who specializes in toxicology, Kim Hooper, told *Science* that malathion is the "saccharin of pesticides." By that he meant that it may be hazardous, but the evidence is sketchy. At high concentrations, malathion produces evidence of doing some damage to DNA, the carrier of genetic information. But the statistics on this point, Hooper says, are "marginal," and the doses required are high. He thinks that for a native of San Jose, experiencing the air spray will be about as dangerous as breathing the indigenous automobile exhaust.

In addition, the Environmental Protection Agency (EPA) and the National Cancer Institute have given their approval of the aerial spraying plan. An EPA spokesman was quoted as saying that malathion is "perfectly safe to be used as directed" and that it "has never been on one of our hazardous chemicals lists." In the absence of any clear evidence that it will injure human health, the spraying program is likely to move forward without hindrance.—ELIOT MARSHALL

U.N. Grapples with Renewable Energy

The first global energy conference since the oil embargo will take place in Nairobi in August

When delegates gather in Nairobi next month for the United Nations Conference on New and Renewable Sources of Energy, it will be the first time in two decades that representatives from industrial countries, oil exporters, and Third World nations have met to discuss energy matters. The latest in a line of U.N. megaconferences that stretches back to the 1972 Stockholm meeting on the environment, it will be a massive talkfest aimed at spurring the development and use of renewable energy resources worldwide.

The Nairobi conference, dubbed UNERG in the absence of a pronounceable acronym of its own, is unlikely to follow the pattern set by previous global conferences, which have generally led to the establishment of new institutions or the launching of international funds to advance their causes. Instead, UNERG is expected to limit itself to exhorting individual nations to pay more attention to renewable energy and directing United Nations agencies to put more of their existing funds into renewable energy projects. A possible exception is in the area of research and development, for the conference will consider a proposal to support an international program to develop biomass technologies, perhaps including the establishment of an institute for research on fuelwood.

Unlike previous U.N. gatherings, UNERG has so far been relatively free from rancorous disputes between representatives of rich and poor countries over the structure of the international economic system. This is chiefly thanks to two developments. The scope of the conference has been tightly drawn to exclude some of the more contentious issues in global energy policy, and UNERG is neatly situated between two summit meetings at which relations between North and South will be the subject of political negotiation.

UNERG was set in motion by a vote of the U.N. General Assembly in December 1978, largely at the instigation of the government of Kenya. Its scope was set more or less by a process of elimination. Oil and gas were excluded because the OPEC nations would not have participated in a meeting to discuss global oil policy. Some of the richer developing countries argued that nuclear power should be included. But the General Assembly voted 43 to 42 to exclude it after the industrial countries, concerned about nuclear proliferation, objected. Coal was left out, according to some observers, because it is concentrated mostly in the industrial countries. And conservation was never seriously considered as a topic, much to the relief of the rich countries who feared that they would simply be castigated for their extravagant energy use.

Consequently, UNERG will focus on an array of 14 energy sources ranging

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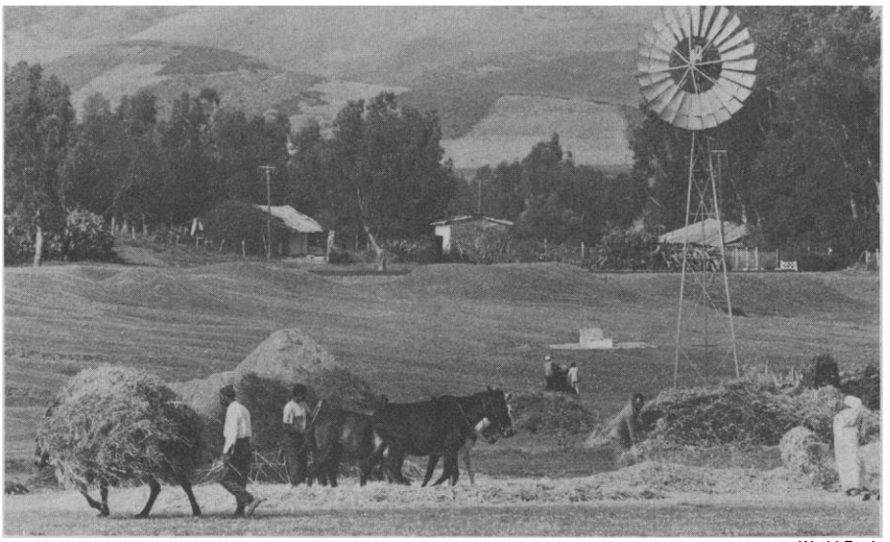
from fuelwood to oil shale. Their chief common denominator is that they have not so far become a topic of international political wrangling.*

This restricted agenda means that the conference will not deal with many of the grittier issues in global energy politics, a fact that has drawn some criticism. A group of experts who met recently in Rome to develop proposals for UNERG reported, for example, that "The restricted scope of the conference, a product of unfortunate political constraints, is not logical. The energy problem cannot be fragmented; neither analyses of technologies and their role in development, nor any new financial institutions designed to support energy investments, should isolate new and renewable sources from the totality of energy sources."

Nevertheless, the elimination from the agenda of the more intractable issues at least means that UNERG will not necessarily be hidebound by the traditional politics of international meetings. "It is true that perhaps it would have been better to have had a broader approach," acknowledges Enrico Iglesias, the conference's Secretary-General, "but maybe this will permit a more realistic consideration" of the potential role of new and renewable energy sources, he suggests.

In the two and a half years that the conference has been in the planning stages, it has generated scores of meetings and a vast pile of reports and documents. Expert groups have prepared reports on each of the energy sources under discussion, on financing needs for renewable energy, on research and development, and on institutional arrangements for planning and coordinating programs at the international level. These were synthesized into a single report early this year. In addition, the World Bank has prepared a study of research and development needs, and the group of experts that met in Rome under the chairmanship of Maurice Strong, the Secretary-General of the Stockholm conference, and Mahbub ul Haq, a senior World Bank official, has produced a slew of recommendations. All of these inputs are being stitched together into a plan of action that will form the core of the debate at UNERG itself. A preparatory committee, chaired by Makoto Taniguchi, a member of Japan's mission to the U.N., is expected to put the finishing touches to the draft plan of action a few days before UNERG opens on 10 August.



World Bank

Rural energy resources

Biomass, wind, and animal power in Morocco

Although the details have yet to be worked out, the plan of action is expected to call for international programs of research and development, training, and information on new and renewable energy resources. It will also launch a major effort to alleviate fuelwood shortages that are now plaguing vast areas of the Third World, causing severe hardship for hundreds of millions of the world's poorest people, and creating vast ecological damage as entire regions are stripped of trees.

The conference is expected to establish a high-level panel to determine international research needs and to help coordinate work at existing research and development institutions around the world. A proposal put forward by the Rome meeting is that there should be a special global R & D program on biomass-based energy, and the Japanese government may propose the creation of a research institute to work on wood fuels.

For all the harmony that has characterized preparations for the conference so far, there are substantial points of tension between rich and poor countries. Finance is one. According to World Bank estimates, developing countries need to spend $60 to $80 billion per year on energy investments during the next decade. This is on top of their oil import bills, which are now running at about $70 billion a year. About one fifth of the investment will be required for the development of new and renewable energy resources. Moreover, the Rome meeting concluded that at least $4 billion will be needed over the next 5 years for investments in fuelwood production.

The United States delegation will go to Nairobi with instructions to oppose the establishment of any new fund for renewable energy development, and it will also resist proposals to set up new institutions. James Stromayer, who is directing the U.S. preparations for the conference, says that the U.S. delegation will seek to negotiate a plan of action at UNERG that draws on existing U.N. funds and institutions.

This position is likely to find support among delegations from some other industrial countries, and U.N. officials have suggested that even some developing countries are agreed that the conference should not stake everything on setting up new funding arrangements. The sorry history of the last global U.N. conference, the United Nations Conference on Science and Technology for Development (UNCSTD), provides a good example of what can go wrong with such a proposal.

Delegates to UNCSTD agreed to the setting up of a $250 million interim fund for the development of science and technology in Third World countries. But the U.S. Congress subsequently refused to provide any money for the fund, and so far only about $50 million has been promised by other countries. UNERG is consequently unlikely to encourage a repeat performance.

Until recently, funding has not been a point of major contention in the UNERG preparations because it has been expected that the World Bank would greatly expand its lending for energy projects. A proposal, which had the general support of most of the industrial countries until earlier this year, would have established a new World Bank affiliate to lend about $30 billion for energy projects over the

*The 14 energy sources are: solar energy; geothermal energy; wind power; hydropower; biomass; fuelwood and charcoal; oil shale and tar sands; ocean energy (including thermal gradients, wave power and tidal power); peat; and energy from draft animals.

next 5 years. These investments would have been used to attract private finance into energy development. In essence, the UNERG conference was seen as establishing a broad framework that would help guide the World Bank's expanded investment program in renewable energy development.

In February, however, the Reagan Administration announced that it could not support the energy affiliate, and the proposal has been derailed (*Science*, 3 April 1981, p. 21). This could cause some strife at UNERG.

The focal point for negotiations over the proposed World Bank affiliate will, however, be the economic summit meeting of Western leaders to be held in Ottawa on 19 to 21 July. There, supporters of the idea, notably Canada and France, will try to persuade the Reagan Administration to change its mind. The most that can be expected, according to U.S. government sources, however, is a promise that the Administration will not oppose an expansion of the bank's energy lending programs within its current structure.

A second forum for thrashing out energy funding will be the North-South summit meeting scheduled for Cancun, Mexico, in October. Again, the United States is likely to find itself under pressure to support an expanded World Bank energy lending program. These negotiations over the World Bank "will be critical for the success of the [UNERG] conference," Taniguchi acknowledged in a conversation with *Science*.

The UNERG gathering is thus unlikely to produce grandiose schemes for solving the world's energy problems. But some suggest that the central achievement of the conference is the fact that it is taking place at all. David Chatfield, a representative of Friends of the Earth who has been helping coordinate the input of non-governmental organizations into UNERG, argues that the conference will help to raise the general level of understanding about the potential for renewable energy sources. "If UNERG pushes the energy transition forward by a few years, then it will have been a success," he says.

Before the Stockholm conference, notes Stromayer, only about a dozen governments had established offices concerned with protecting the environment; within a year after the conference, virtually every country had an office in place. UNERG, suggests Stromayer, "may similarly legitimize the role of new and renewable energy sources."

—COLIN NORMAN

French Government Bullish on Science and Technology

Both a bigger budget and substantial changes in organization are in store for French science under the Socialist government of President François Mitterrand. Decisions on funding and on details of restructuring are at least several months away, but the government is moving to carry out Mitterrand's design of using research and development as a major tool for achieving economic recovery and social reform.

Mitterrand has kept a preelection promise to give full cabinet status to a science minister; the post has been subordinated to the Minister of Industry in recent French governments. The new Minister of State for Research and Technology is Jean-Pierre Chevènement, 42, an intellectual technocrat from the left wing of the Socialist Party. He appears to have won a contest within the cabinet for control over the agencies that are responsible for basic research and scientific information. He is also expected to exert increased influence in nonmilitary nuclear affairs and the French space program.

In recent public statements, Chevènement has affirmed Mitterrand's pledges to increase spending on R & D from the present 1.8 percent of the gross national product to 2.5 percent by 1985, and to ask parliament to expand the nation's corps of researchers by some 4 percent, the largest increase since 1969.

Other Mitterrand proposals include creation of a special parliamentary committee for technology assessment and for a council on science and culture that would report directly to the President. Chevènement last month announced the government's intention to sponsor a national conference on scientific options in the autumn. The discussions would form the basis for a new science program to be submitted to parliament in 1982.

As part of a grand strategy for science, Chevènement says that the government will sponsor special programs in biotechnology, microelectronics, and new sources of energy. Chevènement is reputed to admire the partnership between government and industry in Japan and is expected to advocate a similar alliance in France.

Chevènement has repeatedly expressed views like those quoted in an interview in the Paris magazine *Le Point*: "Above all, the technological revolution is at the heart of the problems. Moreover, it conditions all the others—energy independence, length of the work week, rapport with the Third World, health policy, industrial competitiveness, etc. We are fully aware, we Socialists, that it is illusory to wish to make society more just and more humane without integrating the parameter of technology."

French scientists' fortunes these days appear more favorable than those of their counterparts in Britain, Germany, and the United States. The catch is that special treatment may be accompanied by exaggerated expectations of results.—***John Walsh***

China to Get $200 Million for University Expansion

In its first loan to the People's Republic of China, the World Bank has advanced $200 million for the support of higher education, particularly graduate education and research in science and technology. The loan is intended to support China's ambitious plans to increase the enrollment of science and engineering students at Chinese universities and to reestablish a graduate education system that was effectively dismantled during the Cultural Revolution.

The bulk of the loan, some $160 million, will purchase research and teaching equipment from abroad. It will be used to strengthen science and engineering departments in 26 universities throughout China.

The loan is geared to China's plan to increase undergraduate enrollment by 7 percent a year, reaching 2.2 million by 1990. Enrollment in graduate programs is slated to rise from close to zero at present to about 200,000 by the end of the decade.

Because enrollment in Chinese universities is currently well below the average for developing countries, China suffers from an acute shortage of skilled and technically qualified peo-

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