

University in New York. Lambright calls Watson a "bureaucratic entrepreneur," someone who manages his part of the bureaucracy aggressively for a clear goal, in Watson's case to produce science that could create a consensus on ozone depletion. "He seized the moment," says Lambright. "He was a network builder. He traveled all over the place; he's a tremendously energetic guy, works hard, and is quite savvy. He pushed his position to the utmost; he was a catalyst for a much bigger process."

While pursuing the ozone problem at NASA, Watson "had the right issue and the right organization at the right time," says Lambright, who has studied the science-policy process of the time. But that may not have been the case when Watson went to the White House's Office of Science and Technology Policy (OSTP) as associate director for environment. There his efforts to coordinate federal agencies' response to the greenhouse problem, global change, and other environmental problems met with far less success.

With Watson's arrival, OSTP informed Congress that the new Clinton Administration "would go beyond basic research on the physical science issues [of global change] to societal and health issues," says Lambright. Watson "tried to move science into policy quickly, which was very entrepreneurial ... but people got upset with a White House figure telling agencies what to do."

Watson admits that his approach at OSTP didn't fly all that well, but "if I had to do it again, I would," he says. Watson feels that his assessment efforts at OSTP "went quite well." In areas as diverse as ozone depletion and oxygenated motor vehicle fuels, "the science input was welcome at the table" where consensus was hammered out.

Coordinating the science at federal agencies was another matter, however. "People may feel I pushed too far in trying to be holistic," says Watson. His holistic viewpoint on natural resources—integrating global warming, biodiversity, and toxins, for example—seemed to some researchers to be more like benign neglect of global warming (*Science*, 22 September 1995, p. 1665). And agencies were reluctant to spend the time needed to coordinate their activities if their budgets weren't rising, too.

As Watson takes on leadership of the biggest scientific assessment of all time, his former boss at NASA, Shelby Tilford of Orbital Sciences Corp. in Dulles, Virginia, hopes he will remain focused and energetic. "I think it's an enormous task," he cautions. "This is a much, much more complicated issue than CFCs. The whole process is going to be much more difficult. The main thing is for Bob to keep the scientific integrity without [the debate] becoming politicized too early. I wish him a lot of luck."

—Richard A. Kerr

MALARIA RESEARCH

South Wants Place at Table in New Collaborative Effort

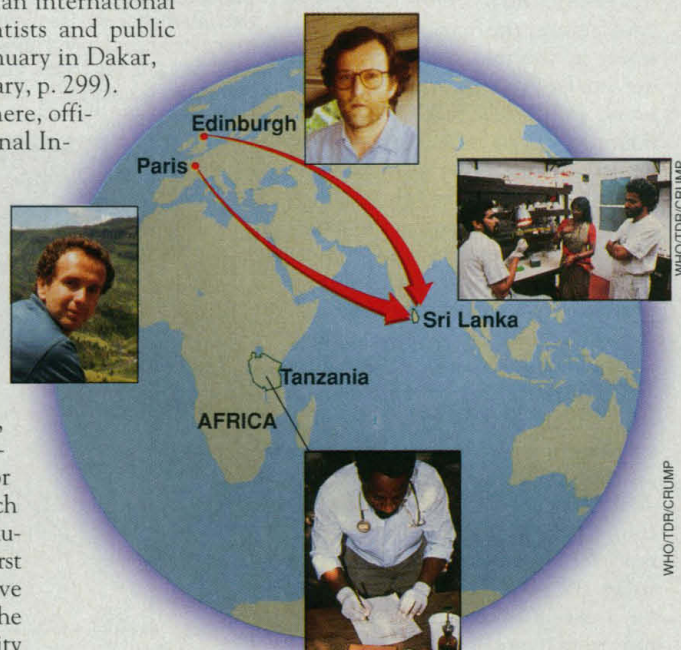
HYDERABAD, INDIA—A new international initiative to combat malaria in Africa has triggered a mixed reaction from researchers in developing countries. While scientists on the front lines in the battle against malaria hail the prospect of additional funding for a disease that claims 3 million lives a year, many wonder if the Multilateral Initiative on Malaria (MIM) can deliver on its promise. At a global meeting on malaria research held here last month, leading researchers from the developing world warned that MIM can succeed only if it treats them as equal partners and tries to build up African science as well as promoting high-quality research.

The idea of a multilateral initiative was first publicly discussed at an international meeting of malaria scientists and public health experts held in January in Dakar, Senegal (*Science*, 17 January, p. 299). At last month's meeting here, officials from the U.S. National Institutes of Health (NIH), the World Health Organization (WHO), the World Bank, and the Wellcome Trust pledged \$2 million to get the project off the ground. In addition, NIH has committed another \$2 million for new initiatives in 1997, including creating a repository of malaria reagents for use by the global research community (*Science*, 29 August, p. 1207). "For the first time, officials from MIM have actually conveyed to the larger scientific community their enthusiasm and their commitment to a genuine partnership in malaria," noted Barend Mons, a senior adviser on international health research for the Medical Research Council of the Netherlands, at the Hyderabad meeting.

But getting this initial commitment may turn out to be the easy part. The \$2 million raised so far is paltry compared with the requests for funds that have poured in since MIM was announced (see sidebar). And even if MIM's sponsors do succeed in raising additional millions, forging the kinds of partnerships that will be needed to carry out the work will be tough. One major obstacle is the imbal-

ance in resources between North and South. That, in turn, can lead to a phenomenon that Win Kilama, director-general of the National Institute for Medical Research in Dar es Salaam, Tanzania, disparagingly calls "parachute science," in which Western scientists drop in to skim off results from local trials. Then there are the stumbling blocks within the developing world—excessive bureaucracy, meager funding, a poor infrastructure, and a shortage of trained native persons—that dilute the effectiveness of outside efforts.

Next month MIM will take the first step toward overcoming these problems when it convenes a panel to sort through "letters of interest" from researchers. The goal, says Tore



Crossing borders, saving lives. One successful, long-term collaboration between malaria researchers in the North and South involves Richard Carter of the University of Edinburgh, Peter David of the Pasteur Institute, and Kamini Mendis of the University of Colombo, Sri Lanka. At the same time, Tanzania's Andrew Kitua works on an African test of a synthetic vaccine.

Godal, director of WHO's special program for research and training in tropical diseases (TDR), is to "to promote, coordinate, and fund collaborative research in Africa" that will lead to "sustainable development of malaria research and control." Organizers say that it could be extended to other regions if the resources materialize.

Godal's language is intended to address two major concerns. The first, by European funding

partners, was that NIH might end up calling the shots by controlling the funding decisions. "This coordinated collaboration from a single pot of money will just not do," says Mons. NIH director Harold Varmus says no such approach was ever planned. "We are receptive to any funding arrangement that will advance science and health in Africa," he told *Science*.

The reference to "sustainable development" is meant to reassure researchers in developing countries who recognize that much of their science lags behind that of the West but who want to avoid being pawns in another top-down fight against malaria. "There is a great danger in the homogeneity that may develop as a consequence of this MIM," says Kamini Mendis, a professor of parasitology and chief of the Malaria Research Unit at the University of Colombo, Sri Lanka. "Any loss in diversity of thinking and ideas could be big. In the long run, the greatest challenge for the MIM is building research capacity in Africa. One must find ways of encouraging original thinking within the proposed structure for increased scientific activity there."

Mendis knows what it takes to succeed in the world of big-time collaborations. For 15 years she has teamed with Richard Carter, a geneticist at the University of Edinburgh in the United Kingdom, and Peter David, a molecular biologist at the Pasteur Institute in Paris, to study natural simian malaria models for testing vaccine candidates. They have paid special attention to the parasite most common in Sri Lanka, *Plasmodium vivax*. Kick-started with a grant from the TDR, the collaboration has produced some 60 papers, including those showing the advantages of natural host-parasite pairs over artificial hosts, such as rodents, in studying the disease. The collaboration has also identified the only candidate vaccine for blocking the transmission of *P. vivax*.

The secret to success, says Mendis, is "a common vision of the scientific questions to be answered" and "very high scientific standards ... not an easy task given that there is hardly any peer group in Colombo." For Carter, the key ingredient is less tangible: "At both the personal and the intellectual level, everything just clicked."

However, such fertile ground is rare in North-South malaria collaborations. Vector biologist Vinod Prakash Sharma, who is also director of the Delhi-based Malaria Research Centre of India, says that the norm is government red tape so formidable that he has "simply stopped writing collaborative projects anymore." A 3-year wait for clearance from the Indian Council of Medical Research and the Ministry of Health, he says, is "time enough to kill the enthusiasm of any partner from the developed world."

Even if Western scientists retain their enthusiasm, it isn't easy for them to find suitable collaborators. In all of Africa, estimates An-

drew Kitua, scientific director of the Ifakara Center in Tanzania, "there may not be more than 10 malaria researchers who can collaborate as co-equals" with Northern scientists. Even a well-funded lab is hard pressed to make a difference in local capacity building.

With an annual budget of about \$6 million and a staff of 500, the tropical disease research laboratories and hospital operated by Britain's Medical Research Council in The Gambia are supposed to be the most sophisticated of their kind in Africa. But only about a quarter of their scientific roster is filled by native Africans, admits Brian Greenwood, a professor of communicable diseases at the London School of Hygiene and Tropical Medicine, who stepped down in 1995 after heading the operation for 15 years. The labs, he notes, have produced only one or two local Ph.D.s a year over the last decade. "We had certain high academic standards to maintain," says Greenwood.

Equally formidable are the barriers to South-South cooperation. "There is a certain gap and lack of effective communication between the Anglophones and Francophones, even though they may be neighboring countries in Africa," says John LaMontagne of the U.S. National Institute of Allergy and Infectious Diseases. "Spoken language complicates the issue even further."

For MIM to flourish, say non-Western researchers, it must shore up the inadequate scientific infrastructure at the same time it wages war on the disease itself. "If malaria is to be really tackled," says Kitua, "then both donor agencies and local African governments have to invest heavily in real capacity-build-

ing exercises that take place in the local African setting and not in America or France."

Of course, training programs need participants to work. "I have been having problems in recruiting local Tanzanians for the Ifakara Center," Kitua confesses. "Communication systems are rather unreliable, and getting access to scientific literature is very difficult," adds Kitua, whose center recently acquired a communications satellite terminal from WHO.

The importance of such links is the impetus for two new regional networks created to strengthen South-South ties that are not now part of MIM. One, called the African Malaria Testing Network, hopes to monitor drug resistance to malaria in Tanzania, Kenya, and Uganda. Another tripartite arrangement, between Thailand, Burma, and Sri Lanka, hopes to train young malaria researchers through a mutual exchange program. "This would strengthen regional dialogues," says Mendis.

The challenge for MIM is to combine all these elements into a comprehensive package that advances malaria research and improves science in the developing world. And nobody expects overnight success. "Traditionally, these funding agencies have never worked together," says one Australian researcher who requested anonymity. "So you cannot expect them to start working in close concordance after only two meetings." Kilama is also cautious about the pending flow of dollars. "The MIM was long overdue and it is very welcome," he says. "But there might be strings attached to the money. I am enthusiastic, but let's wait and see."

—Pallava Bagla

Pallava Bagla is a science writer in New Delhi.

MIM Gets Down to Business

NEW DELHI, INDIA—Despite concerns about how the new Multilateral Initiative on Malaria (MIM) will be managed and what impact it will have on the developing world (see main text), researchers haven't been shy about asking for their share of the money. That leaves MIM organizers with an old but familiar problem of separating the wheat from the chaff.

Last spring, an invitation from the U.S. National Institutes of Health and the European Commission for "letters of interest" attracted 134 responses seeking a total of \$130 million. With only \$2 million pledged, organizers have formed a task force that will meet next month in Geneva to begin the process of elimination.

The panel's primary job will be to identify ideas that can be turned into first-rate proposals to build research capacity, and to encourage labs with similar ideas to join forces on a common application. "It is clear to anyone who has read the letters that they are simply statements of ideas and are not really comprehensive proposals," says Anthony Fauci, director of the U.S. National Institute of Allergy and Infectious Diseases. "Therefore, I think it is very likely that the review committee will request formal proposals from some of the applicants. It may also recommend that some investigators might benefit from submitting a joint proposal."

This new round of proposals will likely be reviewed in February, says Tore Godal, director of the special program for research and training in tropical diseases of the World Health Organization, which has assembled the task force. By that time, he says, additional funding may be available from both current and new partners. —P.B.