## Sub-Sahara Needs Quick Help to Avert Disaster

It is an old story that has been told time and time again. Africa's sub-Sahara has runaway population growth; its natural resources are increasingly being strained; economic stress is mounting; and African governments' programs too often are tilted to serve the elite class, rather than fix fundamental structural problems in withering economies. But Robert S. McNamara, former president of the World Bank, is out retelling the story—hoping the world will not just listen but will act decisively.

The decline of sub-Sahara has been documented thoroughly by the World Bank and other organizations in recent years, but McNamara says little has been done by African governments and outside countries to effectively deal with these population, finance, and resource problems. Unless action is taken soon, he says, "the disastrous famines that are currently restricted to years of drought and to only a few countries will become everyday occurrences affecting a majority of the sub-Saharan nations."

McNamara aired his views in a speech delivered 1 November in Washington. To partly address this problem, he recommends increasing bilateral trade with the region by 30 percent, hiking World Bank lending substantially, rescheduling the debt of sub-Saharan nations, and establishing a special research program to probe African ecological issues. McNamara's remarks came in a presentation before the Consultative Group on International Agricultural Research to honor the late Sir John Crawford, an Australian economist who helped found the organization.

For countries such as Cameroon, Ethiopia, Ghana, Kenya, Tanzania, Zaire, and 39 others, says McNamara, time is running out. Vast ecological damage resulting from deforestation and population surges will lock these societies into decades of increasing poverty, famine, and perhaps social strife, McNamara says, unless problems are tackled now. And unbridled population growth is the root cause of the continent's woes. Since 1950, the population of the sub-Sahara region has grown from 172.4 million to 363 million in 1980. This will double again by 2000 and double still again by 2025 if the fertility rate of 6.7 children per woman persists. To slow rates of growth, aggressive birth-control measures must be adopted by countries, McNamara notes.

Even if this is relatively successful, the population will continue to mushroom for the next four or five decades. To feed these people, governments will have to place much greater emphasis on improving agricultural production, which has been declining in recent years in many instances. Increases in domestic food production, however, are likely to fall short of the current population growth rates of 3.2 percent during the next two decades, McNamara says. So existing levels of malnutrition will grow worse in the near future.

Literacy rates and educational systems in the region must be improved significantly if these nations are to take control of their destiny, McNamara states, adding that the international community's efforts to help sub-Sahara must focus on long-term solutions, not just emergency relief. International aid should be increased, he says, even if it means cutting back on military assistance to other countries.

"If we don't make those joint efforts, then all of us must prepare ourselves for a scenario of suffering and starvation and economic collapse in Africa beyond anything we have seen thus far."—**MARK CRAWFORD**

## BNL Security Fix Stalls Restart of Beam Reactor

Experiments at Brookhaven National Laboratory's high-flux beam reactor have been at a standstill since September and may not resume until next year. The Department of Energy's Chicago operations office has closed the facility to upgrade security systems protecting stocks of highly enriched uranium 235, which fuels the 60-megawatt (thermal) neutron source.

DOE notified the lab in late September that a planned shutdown for maintenance would be extended to address security deficiencies. Lab officials have declined the specifics of the security improvements, but scientific staff members are clearly irked by the prospect of having to delay some experiments. Laboratory officials, who are under orders not to discuss the situation, wonder why the reactor cannot resume operations while security is being upgraded.

The Chicago operations office says there is no date certain for restarting the reactor. Noting that there is a substantial stock of U-235 on site, one DOE official stated that "The guard force at the laboratory has to be trained to meet potential threats." The improvements in security at Brookhaven, he adds, are part of a general upgrade of federal facilities around the country—not a response to any specific threat, or anticipated effort by terrorists to acquire fissionable materials.—**MARK CRAWFORD**

## Spy Trade Might Free Two Soviet Scientists

Two dissident scientists, Andrei Sakharov and Anatoly Shcharansky, could be freed by Soviet officials if the upcoming 19 to 20 November meeting between President Reagan and Prime Minister Mikhail S. Gorbachev comes off well. According to the *Bild Daily*, a West German newspaper, the two prominent human rights activists could be released as part of a spy exchange allegedly being negotiated by officials in Moscow and Washington.

State Department and Soviet Embassy officials claim to have no knowledge of the pending deal, except for media accounts. The Associated Press wire, however, reported on 31 October that the ongoing negotiations were confirmed by a Soviet journalist, Victor Louis, who often is funneled information by Soviet government officials. But one State Department official cautioned against expecting too much. "Every time there are high-level talks like this, there are rumors of an imminent release. I do not think we will really know until it happens."

Under the alleged arrangement, several Soviet and other Eastern Bloc spies were to be traded for Sakharov, Shcharansky, and perhaps a dozen more Western agents belonging to the United States, Britain, and West Ger-

many, *Bild* said. Sakharov has been in exile in Gorky since 1980, following his denunciation of the Soviet Union's invasion of Afghanistan.

On 4 November, Sakharov was allowed to telephone relatives in Newton, Massachusetts, for the first time in 6 years. Sakharov told his family that he can see visitors from the Soviet Academy of Sciences and receive mail.

Sakharov's wife, Yelena Bonner, was just recently granted permission by Soviet officials to travel to the West for medical care. Soviet officials granted Bonner a passport after Sakharov went on a hunger strike and was hospitalized for 14 days.

—MARK CRAWFORD

## USDA May Be Asked to Police Animal Research

On 28 October, the Senate agreed to consider an amendment that would put the Department of Agriculture in charge of protecting the welfare of animals used in medical research. The proposal is part of the farm bill, which is still in debate.

In addition to protecting against physical mistreatment, it would require that dogs be given regular exercise and that the "psychological well-being" of primates be respected.

The proposal came about as a compromise. Majority Leader Robert Dole (R–Kan.) opened the subject with an amendment on 25 October, a version of an animal welfare bill he had offered earlier. The wording clashed with that of the NIH reauthorization bill, which contains its own section on lab animals. The NIH bill has been sent to the President for his signature or veto.

Orrin Hatch (R–Utah), chairman of the Labor and Human Resources Committee, objected to the proposal. After a weekend of negotiating, Senator John Melcher (D–Mont.) came up with a compromise. It was quickly accepted on 28 October.

However, when NIH took a close look, it found some surprises. Most important, NIH is to have a minimal role in establishing the new animal rules and would defer to the Secretary of Agriculture.

The proposal asks every research institution to create an animal welfare committee composed of at least three members. One must be a veterinarian (Melcher is a veterinarian), and one a nonmember of the institution. The group must inspect the animal facilities at least twice a year. The Department of Agriculture is to make inspections as well. The law asks for new regulations to ensure that in every case "the principal investigator considers alternatives to any procedure likely to produce pain to or distress in an experimental animal." And it seeks exercise for dogs and "a physical environment adequate to promote the psychological well-being of primates." In addition, the amendment seeks to guard the confidentiality of research by imposing heavy fines on animal welfare reviewers who leak information.

The proposal still has a long way to go before becoming law, for it must be passed by the Senate, approved by the House, and signed by the President. In the meantime, Hatch is said to be drafting an amendment to the amendment.—ELIOT MARSHALL

## Ownership of Cells Raises Sticky Issues

The commercialization of biotechnology and a novel lawsuit filed last year prompted a House subcommittee recently to review some new issues concerning the responsibilities of biomedical researchers and the rights of patients.

In September 1984, a patient named John Moore sued the University of California, charging that researchers at the Los Angeles campus took unfair advantage of him by using his cells to develop a cell line, which was eventually patented (*Science*, 16 November 1984, p. 813). The cell line produces several potentially valuable substances, including immune interferon, but none has been marketed. Last month, Moore also sued Genetics Institute and Sandoz Pharmaceuticals, which have licensed the patent.

Should a patient whose tissue led to a money-making product be compensated? Thomas Murray, an ethicist at the University of Texas at Galveston, suggested at the House hearing held by the Science and Technology subcommittee on investigations and oversight that out of a sense of fairness, a patient should get a share of the profit under some circumstances. By way of analogy, Murray said, if a person gave a recipe to a friend, who then published it verbatim in a cookbook that hit the best-seller list, the person should probably receive some compensation. But if the recipe was altered to some degree, then the idea of compensation is not so clear-cut, Murray remarked.

The general sense of the biomedical scientists who testified is that reimbursement is not warranted because considerable research and modification of a patient's tissue occurs before patent claims can even be contemplated. David Blake, associate dean for research at the Johns Hopkins School of Medicine, likened a researcher to a real-estate developer. The developer buys land from a farmer, but the farmer is not usually paid according to the selling price of the developed real estate, Blake said.

Witnesses at the hearing contemplated whether informed-consent procedures for patients should be modified to discuss the commercial implications of research. As a practical matter, "for every success [in research], there are hundreds of failures," said Robert Levine, chairman of the institutional review board at Yale School of Medicine. He added that it is difficult to justify compensation and identify who should receive it because researchers build on the work of many other scientists and rely on the participation of many patients—hundreds in some clinical trials.

It is unclear how often patent claims made by researchers are closely related to patient tissue. According to a subcommittee survey of 81 medical schools, 22 percent of the patents the schools applied for between 1980 and 1984 originated from patients' tissue. The subcommittee, however, did not ask about the exact patent claims and their specific relationship to the patients' material.

The crux of the issues raised by the Moore case is to protect the trust between researchers and patients, Murray suggested. The greatest danger as biotechnology raises the commercial stakes in biomedical research is that researchers could be viewed as taking advantage of patients, he said.—MARJORIE SUN