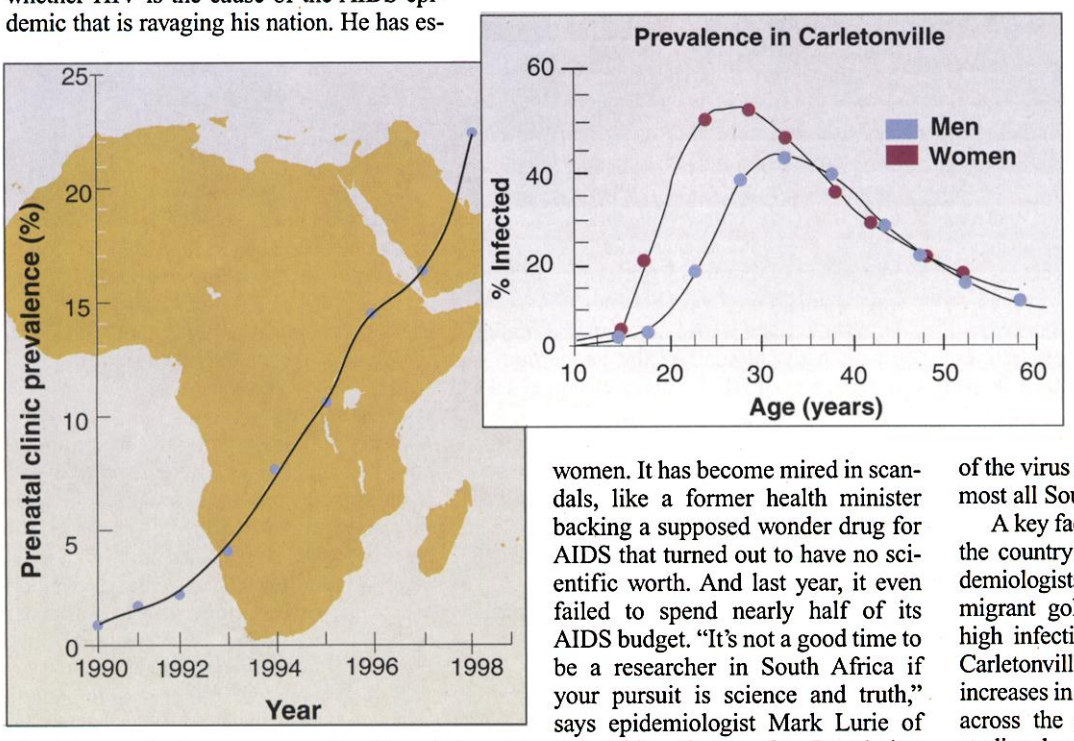
South Africa's New Enemy

Many South Africans long dreamed of the day when the oppressive apartheid system would end. That day has come, but now the country faces a new disaster: one of the world's worst HIV epidemics—and most confusing government responses

Since the beginning of this year, an estimated 320,000 South Africans have become infected with HIV, accounting for fully half the new HIV infections in sub-Saharan Africa. During that time, South Africa's president, Thabo Mbeki, has been publicly questioning whether HIV is the cause of the AIDS epidemic that is ravaging his nation. He has established a four-person panel to come up with tests to prove whether the virus causes the disease, although virtually every AIDS researcher believes the cause was proven beyond any reasonable doubt in the 1980s. The panel plans to report its findings in time for the international AIDS meeting to be held in Durban next month. Mbeki himself is scheduled to deliver the keynote address, which should guarantee that his skepticism will continue to get headlines around the world.

Mbeki describes his interest in discredited ideas about HIV as a search for a better way to deal with the epidemic in Africa. Outsiders may see it as a flirtation, but many AIDS researchers here see it as irresponsible. While HIV infection rates soar in South Africa, the government has stumbled from controversy to controversy, undermining confidence in its public health strategy. Although the Mbeki administration has supported AIDS prevention efforts and research, it has ignored its own experts' advice to provide AZT to HIV-infected pregnant women. It has become mired in scandals, like a former health minister backing a supposed wonder drug for AIDS that turned out to have no scientific worth. And last year, it even failed to spend nearly half of its AIDS budget. "It's not a good time to be a researcher in South Africa if your pursuit is science and truth," says epidemiologist Mark Lurie of the Africa Centre for Population Studies and Reproductive Health, a Wellcome Trust–funded effort in Mtubatuba.



Shocking sentinels. Pregnant women *(above)* dramatically indicate how HIV prevalence has soared in South Africa. Young men and women in this mining town *(right)* have been particularly hard hit.

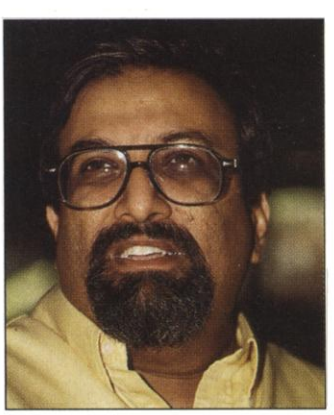
Fertile ground

Salim Abdool Karim, head of the HIV Prevention and Vaccine Research unit in Durban that's sponsored by the Medical Research Council (MRC), says the government's confused response to the epidemic, combined with a large migrant workforce, high rates of sexually transmitted diseases, a thriving sex worker industry, and widespread poverty, provided a perfect breeding ground for HIV. "You couldn't ask for anything else," says Karim, who chairs the scientific program for the upcoming Durban meeting. "If I were going to design an infection that was going to ravage this country, I could not do better than HIV and AIDS," says Karim, a large man who goes by the nickname "Slim."

South Africa has had two HIV epidemics. The first took place in the 1980s and remained largely restricted to homosexual men; the second, much larger one took off in the 1990s and spread rapidly among heterosexuals. Studies from prenatal clinics across the country, which form the basis for national estimates, show prevalence skyrocketing from 0.76% in 1990 to 22.4% by 1999 (see left-hand graph). South Africa's Ministry of Health estimates that HIV now infects 4.2 million children and adults in the country, about 10% of the population—and more than 10% of the total infections in the world. A strain of the virus called subtype C accounts for almost all South Africa's infections.

A key factor in the disease's spread here is the country's large migrant workforce. Epidemiologists have evidence, for example, that migrant gold miners are the link between high infection rates in the mining town of Carletonville, near Johannesburg, and sharp increases in infection rates in KwaZulu-Natal across the country. Preliminary data from studies by epidemiologist Lurie and colleagues show that HIV has infected one or both partners in 33.7% of "migrant couples" in KwaZulu-Natal—nearly double the prevalence in nonmigrant couples.

In Carletonville, according to epidemiologist Brian Williams, who works with the nonprofit Council for Scientific and Industrial Research, he and his co-workers have found that a staggering 60% of 25-year-old women are infected, as are 50% of 32-year-old men (see right-hand graph). Says Williams: "It's completely terrifying."



HIV haven. "Slim" Karim clarifies why the virus thrives in his country.

Learning to govern

In response to this mounting crisis, the government has organized AIDS counseling and training centers, promot-

SOURCES: BRIAN WILLIAMS/SOUTH AFRICA DEPARTMENT OF HEALTH

ed the use of condoms, led the international campaign to pressure pharmaceutical companies to lower drug prices, and boosted the AIDS research budget. But as MRC president Malegapuru William Makgoba pointed out in a 19 May *Science* editorial (p. 1171), the best chance to control the HIV epidemic in South Africa was when the apartheid era was ending in the early 1990s, but at the time the country "had no effective government." Makgoba wrote: "In the midst of the heroic efforts to build a new, pluralistic South Africa, the HIV epidemic simply became one challenge too many."

Compounding the problem, the post-apartheid government that took over in 1994 and which Mbeki now heads has sown confusion and anger with its HIV/AIDS policies. "You have a government that's learning to govern," says Karim. "It's a government learning that liberation is more than good ideas."

First came the scandal over Sarafina II, a 1995 AIDS musical commissioned by the Health Department that cost $14 million rand (US$2 million today)—a substantial chunk of the AIDS budget—and triggered an official investigation of then–health minister Nkosazana Zuma and others. Zuma, with support from then–deputy president Mbeki, next helped promote Virodene, a supposed anti-HIV wonder drug that turned out to be worthless. A team appointed by Zuma then recommended abolishing the government-appointed Medicines Control Council, which had criticized the testing of Virodene. The council, the equivalent of the U.S. Food and Drug Administration, also has written two reports detailing how AZT benefits outweigh risks, but the Health Ministry has not accepted either report.

Since taking office in June 1999, Mbeki has further baffled AIDS researchers and advocates. Under pressure to provide AZT to HIV-infected pregnant women and rape victims, Mbeki last October told his Parliament that doing so would be "irresponsible" because "the toxicity of this drug is such that it is in fact a danger to health." Then Mbeki began questioning whether HIV causes AIDS (*Science*, 28 April, p. 590). This spring, the South African Parliament also learned that the health department had not spent 40% of its AIDS budget. "It's a very difficult situation we're in," says Quarraisha Abdool Karim, the former head of the National AIDS Program (and Slim's wife), who now studies HIV infection in women. "Every few months we have this case that undermines all the good work that's been done."

AIDS researchers in South Africa become most exercised about the country's refusal to provide drugs to HIV-infected pregnant women. South Africa participated in the PETRA study, which showed in February 1999 that a short course of AZT combined with the anti-HIV drug 3TC could cut infection rates at birth in half. Health Minister Mantombazana Tshabalala-Msimang, an obstetrician gynecologist, says the treatment is impractical in South Africa: "AZT/3TC is beyond what this country can afford." She notes that nine sites in South Africa now are evaluating the much cheap-

PROFILE

A Research Renaissance, South African Style

CAPE TOWN, SOUTH AFRICA—Sitting in a patio restaurant at the posh Cape Grace hotel in the shadow of the majestic Table Mountain, Malegapuru William Makgoba shakes his head in disbelief at his own words. Speaking of his friend President Thabo Mbeki, who recently embraced the "dissident" faction that questions whether HIV causes AIDS, Makgoba says, "The sad part is, he's trying to politicize scientific facts, and that's what the Nazis did."

Makgoba, the first black president of South Africa's Medical Research Council, has been among the most outspoken critics of Mbeki's waffling on HIV. Shortly after the news broke this winter that Mbeki had doubts about the link between HIV and AIDS, Makgoba launched a high-profile, frontal assault, including sharply worded editorials in leading South African newspapers and in *Science*. It's not a particularly comfortable position for a man who shares many of Mbeki's political views. Just this morning, for example, Makgoba will appear on a television talk show to discuss a book he edited called *African Renaissance*, for which Mbeki wrote the prologue.

Indeed, if somebody had told him that he would return in 1994 from a self-imposed exile to help improve the lot of black scientists, rise to prominence in a black-led administration, and then become one of the sharpest critics of that government, "I would have said they were crazy," Makgoba says.

Raised in a part of South Africa's rural Transvaal that's now called the Northern Province, Makgoba grew up as a shepherd. "The first time I wore underpants was when I was 15," he laughs. Before going off to boarding school, he rubbed lion fat on his body to make him strong.

Pointing the way. MRC head Malegapuru Makgoba, policy shaper and politician shaker.

Makgoba earned a medical degree in Durban's University of Natal and in 1981 won a Ph.D. fellowship at Oxford, studying immunology with Andrew McMichael. "Overall he was one of the most broadly able and interesting students I have seen," says McMichael. "He's a good scientist, but with a mission to do something special for his people."

After a stint at the U.S. National Institutes of Health and London's Royal Postgraduate Medical School, Makgoba returned to postapartheid South Africa in 1994 to become deputy vice chancellor at the University of Witwatersrand. Soon, he became embroiled in an ugly power struggle with 13 colleagues who accused him of gilding his resume. He fought back in the press, turning the tables on many of his accusers, and wrote a book (*Mokoko, The Makgoba Affair*) that won him loyal admirers and staunch critics. One detractor, a South African economist, wrote in *Africa Studies Quarterly* that Makgoba's recounting of his accomplishments made him sound "intellectually pompous and arrogant and utterly self-centered, if not downright egocentric."

Makgoba laments that South Africa has no prominent black AIDS researchers. But "talking about AIDS is the tip of the iceberg," he says: "There are just not many prominent black researchers. ... It's one of our biggest challenges not just in medical research, but in the whole educational system." Yet Makgoba himself has hung up his lab coat. "The quickest way for me to open possibilities for black people in the long term is not sitting in a lab and training them," he says. "It's being in a position of power and impacting policy that will affect people across the board."

As for Mbeki, Makgoba thinks his president may end up making lemonade from the lemon. "I do believe Mbeki is flexible enough that at the end of the debate he has caused, he'll make a judgment that's reasonable to us," says Makgoba. "It may be that this case is a turning point." It certainly has been for Malegapuru William Makgoba. **–J.C.**

er regimens of nevirapine (see p. 2160). "Researchers advise governments," says Tshabalala-Msimang. "They're doing studies. They said we should wait."

Quarraisha Karim bristles at this. "Research is being used as an excuse not to make policy," she says. Makgoba adds that the MRC has presented the government with studies that prove the cost-effectiveness of providing AZT/3TC. He thinks part of the reluctance to follow the advice of scientists comes from the government's antipathy toward pharmaceutical companies. "It's an unhappy relationship," says Makgoba. "And the science is caught in the middle of it."

Parks Mankahlana, Mbeki's spokesperson, confirms a widespread rumor that providing treatment to infected pregnant women worries the government because of the number of surviving orphans this policy would create. "A country like ours has to deal with that," insists Mankahlana. "That mother is going to die, and that HIV-negative child will be an orphan. That child must be brought up. Who's going to bring the child up? It's the state, the state. That's resources, you see?"

Obstetrician James McIntyre, who co-directs the Perinatal HIV Clinic at Soweto's Chris Hani Baragwanath Hospital, says this cynical argument doesn't even make sense. "Drug treatment doesn't create the orphan problem," says McIntyre. "If we do nothing, seven out of 10 kids will be uninfected, and they'll be orphaned. And we have to consider what happens to orphans. It's a whole lot easier for the family to take care of uninfected children."

When asked how Mbeki feels about embarrassing his country's AIDS researchers, Mankahlana responds, "People are just being foolish." He adds: "You know, Mbeki wants to wake up in the morning and see the South African economy grow. He wants to see jobs being created. He wants to see crime levels coming to zero. He wants to see lodgings of people improve. OK, there's this problem of HIV/AIDS, but you see scientists must work. They must do what they have to do, which is to find a cure for this thing. They must. If they want government assistance, they will get it. End of story."

Of course that's not the end of the story. When thousands of AIDS scientists and hordes of journalists flock to Durban in July for their weeklong international meeting, they will focus the world's attention on South Africa's response to HIV and AIDS. Makgoba suspects the conference may go a long way toward helping his government develop a sound strategy for confronting the epidemic. "When South Africa was tearing itself apart with apartheid, the world came to South Africa and solved the problem," says Makgoba. "When South Africa is tearing itself apart with AIDS, it may just provide another opportunity for the world to help." **–JON COHEN**

NEWS

Confronting Conference Complexities

DURBAN, SOUTH AFRICA— For most of his life, Hoosen "Jerry" Coovadia was a second-class citizen. As an ethnic Indian in South Africa's apartheid system, the University of Natal pediatrician had limited freedom to conduct his own research and little contact with colleagues abroad. "Access to the outside world and the research agenda was dictated by the white minority," he says matter-of-factly. But, like that of millions of black, Indian, and "colored" citizens of South Africa, Coovadia's world changed in 1994 when South Africa held its first democratic election. Next month, Coovadia's status in the new South Africa will be unmistakable: He will chair the XIII International AIDS Conference here, the first time this high-profile gathering has been held in a developing country.

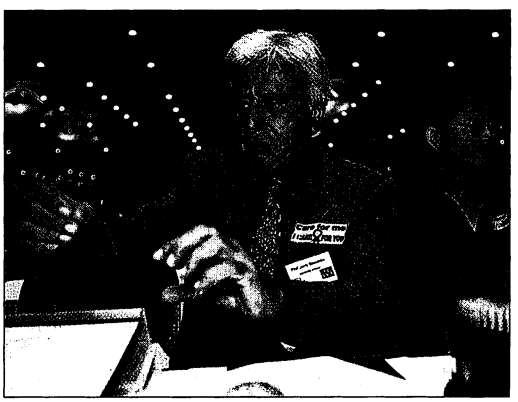
"We see this conference not only as an opportunity for scientific discourse, but as a chance to highlight South Africa—the extent of the epidemic here and what we've been able to do in this country," says Salim Abdool Karim, who chairs the conference's scientific committee. Karim, who also is of Indian descent, notes that he and other scientists for many years supported an academic boycott imposed by international colleagues to pressure the South African government to end apartheid. "Even though it was a necessary strategy, it hurt us and the enemy," says Karim. "Research in South Africa is still suffering from that. It's just a necessary part of the price we paid for our freedom."

Coovadia, Karim, and the other organizers have gone to great lengths to make the conference work smoothly. They've had several meetings with representatives of pharmaceutical companies, who in years past have set up luxurious, even garish, booths to promote their latest anti-HIV drugs—which most Africans of course cannot afford. "If they keep their word, they will have much more restrained displays," says Coovadia.

The organizers also have tried to allay, as best they can, the concerns that many foreign scientists have about visiting South Africa. Some have called for a boycott to protest South African President Thabo Mbeki's handling of the country's AIDS epidemic; others worry for their safety. Although most international AIDS conferences have issued upbeat press releases in the weeks preceding the meeting, the South Africans have put out notices arguing against a boycott and describing the various security firms they (and some pharmaceutical companies) have hired. Another press release states that a protest march against "pharmaceutical giants" will precede the opening ceremony and "will be peaceful, not 'another Seattle,' " a reference to last year's riots that disrupted the World Trade Organization meeting in Seattle, Washington.

Coovadia says he welcomes protests as long as they don't cause harm or damage. "We ourselves grew up in an environment where we protested apartheid," he says. Although he suspects attendance may be lower than the last few meetings—both Geneva in 1998 and Vancouver in 1996 had about 10,000 attendees—he says he expects at least 8000.

Karim stresses that South Africa offers something never seen before at an international AIDS conference: an upclose look at the AIDS epidemic, ground zero. "It's very nice to go to Vancouver. It's very nice to go to Geneva," says Karim. "But we want the world to see what the epidemic can do to destroy a country and a continent." **–JON COHEN**



Picture perfect? Jerry Coovadia has worked overtime to prevent problems from disrupting the meeting.