already gone, says Stanford University's George Bunn, a former negotiator on the nuclear nonproliferation treaty. In recent years the United States has striven to help other countries convert research reactors that use weapons-grade nuclear fuel into ones that consume low-enriched uranium (LEU).

The U.S. government reviews U.S.-led projects to build reactors in foreign lands but has little sway over deals that other countries strike. In a press conference last week, a State Department spokesperson said the government expects Myanmar "to not produce unsafeguarded fissile material." According to the Defense official, the government is worried that the reactor could increase the threat of radioactive materials falling into the hands of terrorists (see p. 777).

Other analysts generally discount the proliferation risk. "From the size of it, it looks like an LEU reactor," says Fred Wehling of the Center for Nonproliferation Studies in Monterey, California. Indeed, as a member of the Southeast Asia Nuclear Weapon-Free Zone, Myanmar "has accepted significant restrictions on nuclear-related activities" under an agreement that allows member states to pursue peaceful research, says Ralph Cossa, president of the Center for Strategic and International Studies' Pacific Forum. "I see very little real threat," he says, "especially if the Russians insist on proper safety and monitoring procedures."

Whether that will happen is an open question. An IAEA team that visited Myanmar in November 2000 concluded that the country's radiation protection infrastructure was "not meeting the expected standards," says an agency official, and followed up with a list of improvements needed to operate the reactor safely. The agency has not yet received a response. Myanmar's foreign ministry declined to make officials available for interviews and referred inquiries to a press conference transcript on the government's Web site.

Perhaps most intriguing is what the deal may mean for regional stability. "It shows some concern [in Myanmar] with not getting too dependent on China, as well as Russia's efforts to increase its own footprint in Southeast Asia," says Cossa. Others add that Russia's cash-strapped energy industry could be tempted to strike additional deals if the Myanmar regime deems nuclear power vital to the country's future. **–RICHARD STONE**

CREDITS: (TOP TO BOTTOM) CENSUS BUREAU/DEPARTMENT OF COMMERCE; DOE

Role model? International authorities hope Myanmar will meet the same safety standards followed by U.S. reactors.

U.S. SUPREME COURT

Census Case Tests Statistical Method

Justices of the U.S. Supreme Court are hiking up their robes in preparation for another march through the political swamp of reapportionment. But more than a congressional seat may be at stake. In agreeing last week to hear a case (*Utah* v. *Evans*) stemming from the 2000 census, the high court will also be examining the legality of a time-honored statistical method for filling in the blanks.

The method, called "hot-deck imputation," goes back to the dawn of the computer age, says statistician Joseph Schafer of Pennsylvania State University, University Park. The term refers to the deck of punch cards that the Census Bureau once used to store data. When a statistician came across a card that was improperly or incompletely filled out, officials were forced to "impute"—essentially make an educated guess—about the missing data. One technique involved finding a household as similar as possible to the one with missing information. "Cold-deck" used cards from the previous census to do the imputation, whereas "hot-deck" drew on the then-current census.

Utah is the latest in a series of legal battles over census methods. In 1999, the Supreme Court declared in a 5–4 ruling that statistical "sampling"—performing a detailed survey of a subset of the population and using those data to compensate for flaws in the general census—could not be used to apportion congressional seats. Utah contends that it unfairly lost a congressional seat to North Carolina, because hot-deck imputation should not be allowed under the no-sampling rule. The Census Bureau and Commerce Department, two of several defendants, argue that imputation is consistent with the "actual enumeration" clause in the U.S. Constitution. They also argue that it is distinct from sampling.

"I've been wrestling with this [question] for a while," says Alan Zaslavsky, a statistician at Harvard Medical School in Boston. "It has some features in common, but it's not what I usually think of when I think of sampling." One complicating factor is that the census surveys the whole population rather than taking the more common approach of selecting a subset and then drawing inferences about the rest of the population. Clearly, that common use of sampling differs from imputation, which is used to draw conclusions from nonresponses and incomplete data.

Fighting mad. Old-fashioned punch cards lend their name to a statistical technique that is now before the court.

But getting rid of imputation would cause immense problems, according to Schafer and Zaslavsky, without obvious solutions. "Throw out imputation, and you throw out a lot of things," says Schafer. "You toss out editing of the data and making sure that it satisfies consistency checks. Now, if someone puts down an age of 145, that's not going to fly. [But] if imputation is not acceptable, what are we to do then?" Throwing the data away would be an implicit imputation, says Zaslavsky. "Another assumption is that there's no population in homes that don't respond. That doesn't seem like a likely story. But if you say you can't do any imputation, that's effectively what you're assuming."

Last year three Utah judges ruled that imputation was acceptable. If the Supreme Court disagrees, it could be difficult to impute the Census Bureau's strategy for 2010.
–CHARLES SEIFE

HIGH-ENERGY PHYSICS

Report Backs Collider And an Expanded Field

U.S. high-energy physicists want to redefine their field to include the entire cosmos. But they also have a very down-to-earth proposal for the government to back their next multibillion-dollar machine.

"Participation in a linear collider is absolutely essential to the field," says Barry Barish, a physicist at the California Institute of Technology in Pasadena and co-chair of the High Energy Physics Advisory Panel (HEPAP) subcommittee that drafted a 20-year road map with the Next Linear Collider