NEW DELHI--A landmark nuclear deal between India and the United States is in danger of unraveling. Top nuclear scientists in the Indian government, speaking on condition of anonymity, have told Science that they oppose provisions of new U.S. legislation that paves the way for civilian nuclear cooperation between the two nations. "The costs to the U.S. appear minimal. The price India will have to pay may well be a total loss of control over its future nuclear policies," asserts M. R. Srinivasan, a member of India's Atomic Energy Commission.

Most egregious, Srinivasan and others say, is language in the law that equates to a de facto ban on further nuclear tests. "The U.S. has shifted the goalposts," grouses one top government scientist. The Indian government is mulling a formal response.

The legislation would end a U.S. ban on the sale of nuclear technology and fuel to India, imposed after India's first nuclear test in 1974. U.S. President George W. Bush signed it into law on Monday, paving the way for negotiations on the "123 Agreement," a bilateral treaty spelling out each country's commitments under the pact. In the meantime, India must conclude safeguards agreements with the International Atomic Energy Agency (IAEA), and the 45-member Nuclear Suppliers Group must amend its rules to permit trade, even though India is not party to the Nuclear Nonproliferation Treaty. U.S. nuclear firms are eager to make sales: India estimates that over the next 25 years it will install almost 50,000 megawatts of nuclear power at a cost of $75 billion.

From the start, however, negotiations over implementing the nuclear accord, inked in July 2005, have been fraught. An early bone of contention was India's plan for separating its nuclear establishment into military and civilian facilities, with only the latter open to foreign commerce. After several rounds of talks, the two sides last March agreed on an implementation plan that was denounced by U.S. non-proliferation experts (Science, 10 March, p. 1356).

Now key Indian leaders are turning against it. Officials say their chief concern is provisions of the legislation that they claim aim to cap India's nuclear weapons program. In a statement last week, the main opposition party, the Bhartiya Janata Party, called for an "out-right rejection" of the deal. And after a meeting on 15 December in Mumbai convened by the chair of India's Atomic Energy Commission, Anil Kakodkar, several retired atomic scientists in a statement called the U.S. legislation "objectionable" and argued that "India must not directly or indirectly concede our right to conduct future nuclear weapon tests."
Core concern. Indian scientists assert that new U.S. legislation makes India vulnerable to a repeat of a nuclear fuel blockade of U.S.-built reactors at Tarapur (one shown above) in 1974.

Indian scientists see a major bugbear in the "joint explanatory statement" from the U.S. congressional conference committee that drafted the legislation. They claim the text makes India vulnerable to a repeat of the U.S. fuel blockade after India's 1974 test. Then, the United States banned the supply of uranium fuel for General Electric-built reactors at Tarapur, in western India. During the recent negotiations, India demanded that any future imported reactors come with assurances of a lifetime fuel supply. The U.S. legislation states that provisions "should be commensurate with reasonable reactor operating requirements." That's fine, Indian officials say, but they are riled by wording in the explanatory statement that fuel cannot be assured in the event of "Indian actions … such as a nuclear explosive test."

"This is most unacceptable," says Srinivasan. Currently, he asserts, the deal would barter away India's right to conduct nuclear tests, particularly if India's electricity grid comes to depend on nuclear power. After tests in 1998, India declared a unilateral moratorium. "There is no question of accepting any such agreement that binds India beyond its voluntary hold on nuclear testing," says a top government scientist. Last week, India's foreign minister, Pranab Mukerjee, hinted at a hard line when he told Parliament, "We will not allow external scrutiny of or interference with the strategic program."

India also was hoping for an explicit allowance to reprocess imported fuel. India reprocesses domestic spent fuel, extracting plutonium for future breeder reactors. (U.S. analysts estimate that India has stockpiled 360 kilograms of plutonium for weapons.) The U.S. legislation does not refer to reprocessing, although "in future, it might get addressed," U.S. Under Secretary of State R. Nicholas Burns told Science; he declined to give further details.

Indian officials also object to wording in the legislation calling for free access for U.S. inspectors to any safeguarded nuclear facility in the event that IAEA were to fail to carry out routine inspections. Last August, Indian Prime Minister Manmohan Singh told
Parliament that "there is no question of allowing American inspectors to roam around our nuclear facilities."

The fate of the nuclear pact hinges on negotiations over the 123 Agreement. Three rounds of talks have been held on the treaty, with no date set yet for the next round. If the two sides do find common ground, Indian and U.S. nuclear scientists could be spending a lot more time together--on nonproliferation. The legislation calls for the U.S. National Nuclear Security Administration to work with scientists from the U.S. National Academies and Indian government to establish a cooperative nuclear nonproliferation program. At least so far, Indian government scientists haven't objected to that.