

Nuclear Test is a must

By Bharat Karnad

Remarkably, in the two and half years since Prime Minister Manmohan Singh signed the misbegotten Joint Statement with US President George W. Bush, neither the government nor the supporters of the India-United States deal for "civilian nuclear cooperation," have been able to counter the substantive arguments about why this deal amounts to death by stagnation for the Indian nuclear weapons programme.

Instead, they have offered polemics — dismissing critics of the deal as "prisoners of the past" or as having "Cold War" mindsets, etc. This may fill newspaper columns and, repeated ad infinitum, flesh out the Manmohan Singh regime's approach to sceptics, but it has failed to still the growing doubts about the deal. Periodic statements by US officials, moreover, have only persuaded the undecided that there must, after all, be something dreadfully wrong with this transaction, or why else would the US government want it so bad and push it so hard?

In the sunset period for the deal, with the dispirited Manmohan Singh giving up on it as a lost cause and the professional pushers beginning to pipe down, it may be best to clarify the pivotal issue about why many more tests are needed to turn the boosted fission and thermonuclear designs in India's employ into safe and reliable warheads or weapons and to optimise them for the various vectors — land-based and submarine-launched ballistic and cruise missiles, ship-based missiles, and bomber aircraft.

Indeed, the dubious quality of advanced Indian weapons is such, the question is not whether India will test again, but when. And specifically, which party or coalition government will have the guts to finally act in defence of national interest and order testing so that this country can acquire proven thermonuclear weapons — the prime currency of power in the new millennium. It will require, moreover, that no Indian government again does the damn-fool thing of "voluntarily" stopping tests after one or a few indecisive underground explosions as Indira Gandhi did in 1974 and Atal Behari Vajpayee repeated in 1998. Manmohan Singh, in a bid to out-do his predecessors, has, with the proposed nuclear deal, reduced testing to only a theoretical possibility. If India wants to be treated as a country of consequence, it better have the thermonuclear wherewithal to match, or it will always get the stick. That is the way it is.

In the main, this means jettisoning the nonsense about computer simulation making physical testing unnecessary. The viability of simulation in designing modern boosted and thermonuclear weapons is determined by three factors. Firstly, the richness of the test data already with the designers. Thus, the American labs at Los Alamos and Livermore can draw upon data gathered from some 1,800 atmospheric and underground tests; even the French weaponeers have 217 tests worth of data to rely on. In comparison, Indian weapons designers have data from a sum total of one boosted fission test and one, and that too only partially successful, thermonuclear test, to work with.

The second factor is the kind of computational speeds available to the design team: the higher the speed, the more detailed and realistic the simulation of nuclear explosions, and the better the eventual design. According to news reports, the Americans have computers capable of 100 trillion operations per second. The most powerful computer with the Bhabha Atomic Research Centre (BARC), the ANUPAM-AJEYA, according to Anil Kakodkar, chairman, Atomic Energy Commission, can muster no more than 3.7 trillion operations per second.

And the third factor has to do with designers having inertial confinement fusion (ICF) facilities, where high energy lasers are used physically to replicate fusion reaction and generate empirical data for designing newer, more lethal and more usable thermonuclear weapons. The US has built an industrial scale ICF unit called the National Ignition Facility in Livermore costing in excess of six billion dollars. The French

have erected the Megajoule facility south of Bordeaux to do the same thing. The Livermore ICF, for instance, uses 240-odd lasers. India has a small experimental ICF unit in Ahmedabad, using directed energy from only a relatively few laser beams.

If the United States has test data from 1,800 tests, a computing capability of 100 teraflops and the gigantic ICF facility to obtain miniature thermonuclear explosions, its belief that it can do without testing in the future, is well founded. Even so, the combined team of the US National Weapons Laboratories at Livermore and Sandia in New Mexico, which won the design competition for the new Reliable Replacement Warhead, is not convinced their design is weaponisable without testing.

Here we have R. Chidambaram, science and technology adviser to the Prime Minister, who as chairman, Atomic Energy Commission, controversially maintained since before the 1998 tests, that the country's laughably minute test data is adequate, its small computing capability sufficient, and its puny inertial confinement fusion facility enough for BARC to design, develop, and deploy a variety of sophisticated boosted and thermonuclear weapons without any of these computer-generated weapons designs having to ever undergo any explosive tests. Welcome to the world of virtual thermonuclear weapons and make-believe strategic reality. Now we know why Chidambaram's reputation is mud in the Indian nuclear establishment. (His successor, Kakodkar, does not count, because he says one thing in public and just the opposite when he is looked in the eye by his colleagues in Trombay.)

Had this nuclear weapons-making standard applied to the Indian Space Research Organisation, for example, ISRO would have been forbidden to launch any large space launch vehicle, been forced to rely on data collected from test-firing only the small Space Launch Vehicle-3 a few times, instructed to design the massive polar orbit and geosynchronous orbit capable space launch vehicles only with the SLV-3 data and entirely on computer, and with this meagre preparation alone, ordered to put some poor Indian into space. If you think this is silly, then consider the danger faced by the country and the less than jocular dilemma confronting the armed forces stuck with untested, unproven, unreliable, and unsafe boosted-fission and thermonuclear weapons.

This is not polemics but hard facts. India may not be burdened with a legal obligation not to test, but our negotiators have produced a 123 Agreement that has rendered the testing option a notional thing, because the benefits they expect to accrue to India in terms of dual-use technologies and unrestricted nuclear commerce, are predicated on India's not testing again. If India nevertheless tests — and like it or not, it will have to some time in the coming years — the deal collapses, and sanctions are re-imposed. But this is the situation India is in today. Except, and mark this, two-thirds of our nuclear programme is not under safeguards, no light water reactors are imported at exorbitant cost, which money can, more prudently, be invested in the development of thorium reactor technologies at home for real energy security, and fuel supply is not hostage to Nuclear Suppliers' Group diktat. So the issue boils down to Manmohan Singh — a strong anti-nuclearist, being satisfied with a third-rate nuclear arsenal for the country. Because the energy rationale he has offered is a fraud. Umpteen studies in the US and elsewhere have concluded that imported reactors will not increase energy production other than marginally and India's reliance on external oil is not going to be reduced even a bit.

The more the deal is scrutinised, the more it confirms the country's security managers responsible for it and those in the Indian strategic community pushing it, as rank amateurs and Pollyannas hankering for disarmament and a nuclear weapons-free world. This is a bad reputation to have in the serious business of nuclear deterrence and power politics.

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