

India-US deal will destroy nuclear research

It is quite probable that this effect was George Bush's agenda.

India Monitor
April 27, 2006

The initial impression of the July 18 Joint Statement as an outline of the nuclear deal Prime Minister Manmohan Singh signed with President George W. Bush was that it may herald a new chapter in India-US scientific cooperation.

But the PM's suo motu statement in Parliament of March 7, 2006 and the recent release of the 'Separation Plan,' disabused the scientific community of any such hope.

Particularly surprising was the Indian government agreeing to put research facilities like the Tata Institute of Fundamental Research (TIFR); Variable Energy Cyclotron Centre (VECC), Saha Institute of Nuclear Physics (SINP), Institute for Plasma Research, Institute of Mathematical Sciences, Institute of Physics, Tata Memorial Centre, Board of Radiation and Isotope Technology, and Harish Chandra Research Institute, which are legitimately safeguards-irrelevant, under International Atomic Energy Agency (IAEA) safeguards.

This is especially disturbing since the Prime Minister owned up to the fact that India had surrendered the right to decide for itself which facilities will come under IAEA safeguards. Moreover, since the Manmohan Singh government has virtually accepted a non-nuclear weapons State status for the country in the Non-Proliferation Treaty regime, negotiating India-specific safeguards and Additional Protocol with the IAEA, will be worrisome. It is well known that the Additional Protocol has evolved in recent years specifically to deal with 'rogue States' attempting to acquire sensitive technology clandestinely.

The problem has clearly arisen due to artificially imposed requirements of categorising the various components of the Department of Atomic Energy into 'civil' or 'military.' Thus the Bhabha Atomic Research Centre and the Indira Gandhi Centre for Atomic Research have been rendered strictly 'military' to avoid attracting safeguards, when more than 90 per cent of the work carried out in these institutions is 'civilian.'

It is well known that safeguard inspections by IAEA when applied to non-nuclear States, are extremely intrusive, immensely disruptive, and are often conducted in an atmosphere vitiated by suspicion. Without any substantiated assurances to the contrary, there is little reason to assume that such will not be the case for India. That the 'judicious' use of suspicion may serve to irreversibly tilt the balance is best illustrated by the Iranian affair where the right of an NPT signatory to develop technology (in this case, the centrifuge to enrich uranium), is subject to advance approval from the IAEA.

The resulting inspection regime, if applied to fundamental research facilities in India, would imply that any or all research may come under scrutiny or have to be first vetted by the large 65 member Board of Governors ruling the intricate IAEA bureaucracy. With India not being a Non-Proliferation Treaty signatory, would the topics 'allowed' for scientific investigation not be decided within the framework of rules applicable to non-nuclear weapons countries or, worse, rogue States? What would be the yardstick for deciding what research is 'sanctioned'? Would this mean that 'civilian' scientists cannot collaborate with their 'military' counterparts since separation must be maintained?

To extend the argument, since such constraints would necessarily have to be focused on indigenous research, criteria could be selective (foreign collaborations with 'acceptable' countries may not be scrutinised) and/or restrictive (it may become increasingly difficult for India to choose its research collaborators if they happen to belong to the 'wrong' country). In such an environment, there will be little scope for pursuing India's tried and proven self-reliance policy in the future since all indigenous work would invite invasive scrutiny.

It has been mentioned that in the event of a national crisis, perhaps none of the trained workforce, equipment or any technology fall-out from such research will be available for military work since India has accepted 'in perpetuity' safeguards on all civilian facilities and purportedly given up its sovereign right to cite national security reasons for withdrawal - a privilege enjoyed by all technologically advanced nations.

Such an artificial 'segregation' would create multiple problems of its own. There is adequate proof that the DAE's applied programmes have drawn heavily from human resources developed in these institutions. In the absence of sensible and responsible negotiations, if inspections include 'pursuit' in principle as they may in the case of nuclear fuel, associated universities, grant funding institutions such as the Department of Science and Technology and other organisations like the Council of Scientific and Industrial Research, etc., will be forced to submit to humiliating and intrusive supervision.

Gone will be the days of unfettered technology development via collaborative research with, say, a private biotechnology company. An international 'licence-permit raj' on Indian scientific creativity will be here to stay and the army of IAEA inspectors will invade all related public and private sector entities, sometimes even without prior intimation. At the very least it would guarantee that scientists and engineers would be endlessly tied up in bureaucratic red-tape so as to satisfy an infinite number of queries so that very little constructive work is actually achieved.

It is far from true that the entities on the list are 'merely' academic institutions when one realises that BARC in its entirety was born from TIFR which was the first institute of its kind in the nation devoted to the physical sciences and mathematics. Recall that Homi Bhabha's vision was to build up indigenous capability through promoting manpower generation in the basic sciences. He wrote in 1944 to J.R.D. Tata that the Tata Institute should be created in order to produce the experts for nuclear energy in India when it becomes feasible. With the firm grounding that such training inculcates, professionals can adapt themselves with alacrity to the requirements of creating technology and its spin-offs.

Indeed, this has been the way all technological innovations have happened throughout the world. To enable this in India the DAE created autonomous institutions like SINP, VECC and others to create and sustain a strong and wide base of specialisations providing an unshakeable foundation for a healthy technological future. Such institutions have also enabled us to initiate new research, such as in the fusion programme. It helped India gain entrance to the International Thermonuclear Experimental Reactor project, and register successes in computing technologies, and space and nano-particle research and a whole gamut of laser based scientific research to name a few areas.

Regardless of the exact nature of the safeguards, the scientific community in India is extremely upset and alarmed that the autonomy of these institutions may now be severely eroded and their research programmes subjected to the worst external

interference. Having been put to great inconvenience of the kind related here. NPT signatory Brazil, for example, has finally been forced to object to IAEA inspections on projects funded by the Brazilian atomic energy agency in the university sector.

But as a non-NPT state, the Indian government may not have retained an escape route in its haste to please Washington. In advanced nuclear countries such as the United States, premier institutions and universities funded by its atomic energy commission would consider it inconceivable to give up their autonomy, which is jealously preserved to enable new and innovative research in the frontiers of science to take seed, grow and flourish.

There can be no artificial constraints on the dissemination of scientific thought and the world has reaped the benefits of a free system, as has India. To put centres of excellence under safeguards of whatever type, would be to serve a body blow to the future of indigenous Indian science. Since scientific and technological strength has brought us to where we are today, this is obviously too high a price to pay. The negative ramifications of such a drastic step would be hard to envisage in their entirety.

On the whole, it is clear that inserting these facilities into the already complex problem of separating the DAE's civilian and military programmes as required by the nuclear deal is a fatal mistake. If it has happened as a result of bureaucratic oversight, this must be corrected. Scientists must come forward with their concerns and initiate a constructive dialogue with the Prime Minister's Office and the ministry of external affairs to prevent such an outcome. The government of India needs to be far more transparent and to consult with a range of retired and serving scientists from the science establishment before actively assisting in the demise of basic research in this country.

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