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OPINION

Lest we forget

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The immediate reaction of many Indian scientists and technologists after the recent nuclear explosions was a sense of euphoria, that they could obtain notable successes whenever the government supported them. Detached introspection by many however raised serious doubts about these developments against the historical background and potential future consequences. Realization dawns that the compulsions of the politicians and some scientists to exercise such options, will have to be moderated in the present day world. They can lead to dangerous situations to humanity at large, apart from creating for ourselves avoidable and adverse situations in the virtually unipolar world in which we now live. We do not seem to have any leverage or any viable moves to play in the chess game of world politics.

It may not be easy the first time, but history demonstrates that while it is not simple, it is not as difficult the second or the third time to achieve such objectives, given the political will, economic backing, and a reasonable degree of capability. Therefore, whenever we scientists and technologists propose development of weapons of mass destruction and their delivery systems, we will do well to think of the implications. Our actions can have profound consequences for humanity at large.

Nuclear power can certainly be used for peaceful purposes, such as generation of electricity. In fact, considering our limited fossil fuel resources, we seem to desperately need it. But nuclear weapons are tools of mass destruction and their development and deployment is altogether a different affair. It was

apparently the possibility for peaceful uses of nuclear explosions (PNE), that prompted India to look into the development of nuclear explosive devices. However, the line that separates the development of devices for peaceful purposes from those intended for not so peaceful purposes, such as weapons of mass destruction, is thin indeed. Our priorities in the development of these devices are now obviously for producing weapons of mass destruction.

The first ever test of a nuclear bomb 'Trinity' took place on 16 July 1945 in New Mexico. The programme got started as a result of a letter from Einstein to Roosevelt, due to the initiative from the Hungarian scientist, Szilard. The war in Europe was over by then. The US dropped one bomb on Hiroshima on 6 August 1945 killing 140,000 people in one stroke and eventually 200,000 in all, out of a total population of 400,000. In Nagasaki, 70,000 people died directly and 140,000 people in all, out of a total population of 250,000. 'Of the 76,000 buildings in Hiroshima, 70,000 were damaged or destroyed, 40,000 totally'. 'It is no exaggeration to say' reports a Japanese study 'that the whole city was ruined instantaneously'. Comment of a child who witnessed the explosion and survived: 'The river became not a stream of flowing water but rather a stream of drifting dead bodies. No matter how much I exaggerate the stories of the burnt people who died shrieking and how the city of Hiroshima was burnt to the ground, the facts would still be clearly more terrible' (Richard Rhodes, *The Making of the Atomic Bomb*, Simon

Schuster, 1986). It need not be stressed that they were the bodies of innocent people. These are inconvenient facts to face.

One would imagine that in the name of developing deterrence, we too have achieved the ability for such destruction. Our scientists and technologists who have developed the bombs do not seem to have personally realized the enormity and the consequences of their actions, presumably because our tests were conducted underground. Bainbridge, the above ground 'Trinity' test director said immediately after the explosion to Robert Oppenheimer, the scientist who was responsible for the whole programme 'now we are all sons of bitches'. Oppenheimer, put it more succinctly. He recalled a line from Bhagavad-Gita, 'Now I am become death, the destroyer of the world' (*ibid.*)

Szilard and several others, tried to get the tests and use of the bombs in war against Japan, and their proliferation, stopped by having a letter written by Einstein to President Truman. They argued that it would precipitate a race between the US and the USSR for production of these devices. By then, the politicians got hold of the issue, with the scientists taking the back seat about its field use. From the estimated 12 to 15 kiloton 'Trinity' bomb, they graduated to megaton hydrogen bombs, capable of destroying whole cities and civilizations and stockpiled them in tens of thousands. The Strategic Arms Limitation Treaty (SALT), CTBT, and the Nuclear Nonproliferation Treaty (NPT) are asymmetric efforts to control the spread of the nuclear arms race. They

are designed to protect the interests of the major nuclear powers, while preventing others from joining the race, thus instinctively forcing others who also have the capability, to join the nuclear club.

It was apparently the testing of a nuclear device on 16 October 1964, by China that started the debate about the development of the 'Peaceful Nuclear Explosives' in India. China's test of a thermonuclear device in June 1967, triggered off the nuclear design of an explosive in Bhabha Atomic Research Centre (BARC). Meanwhile, differing views continued to be heard on nuclear weapons option for India. Sarabhai, who took over as Chairman, AEC and Maj. Gen. Som, then Director of the Institute of Defence Studies and Analysis (IDSA) apparently felt that nuclear weapons were not needed. Some people like K. Subramaniam the then new Director of IDSA, have been arguing for it and some others like Gen. Kariappa against it (*The Atomic Energy in India, 50 years*, Publications Division, DAE, Government of India). It would appear that it was the anxiety of the nuclear and defence scientists to establish their credentials and the political perceptions that have guided our policies since then. It was reported that both the prime ministers, P. V. Narasimha Rao and H. D. Deve Gowda were also apparently approached for their consent for the testing of the nuclear devices, but they had refused. However, development of nuclear deterrence has been a part of the BJP manifesto. It gave its consent to the scientists shortly after it came to power.

It is clear that our scientists achieved a quantum jump in the nation's ability to create weapons of mass destruction. But at what price? One wonders if really 'Buddha smiled', to quote the ironical code phrase used to inform the Prime Minister after the first successful nuclear explosion in Pokhran in 1974. The code phrase would seem to display a certain cynical contempt for the value systems Buddha espoused. These recent developments should make us ponder over the potential consequences of our current compulsions for our dance of death and destruction.

The few senior scientists in India who have spoken since last May, would seem to be more concerned about the constraints on their work following the US

sanctions than on the potential dangers to humanity they imply. It is sad that an opportunity for a momentous national debate has been reduced to the level of protecting personal interests.

The question arises, at what price? Who are our adversaries and what are our relative strengths for a nuclear race and confrontation? Few knowledgeable people believe that it will be wise for us to wage even a full-fledged conventional war with China, leave alone a nuclear war. What with their estimated 450 nuclear warheads, compared to an estimated 65 with us (*India Today*, 1 June 1998), it does not make sense to join the race, unless we wish to bankrupt and destroy ourselves in the bargain. Rammanohar Reddy (*The Hindu*, 31 August, 1, 2 September 1998) estimated that to exercise a meaningful nuclear option, after taking into account the former army chief General Sunderji's estimated requirement of 150 warheads and associated delivery systems, we need about Rs 28,000 crores (about US \$70 billion) of investment. Lest we forget, we may remind ourselves of the estimates given by P. V. Narasimha Rao, the then Cabinet Minister for HRD, for setting up the Navodaya School System. It was also about Rs 28,000 crores. He had to drop the idea, as such funds were just not available. Recently, M. M. Joshi, the HRD Minister expressed his inability to provide school education to all the children as the government did not have the Rs 40,000 crores needed to implement it. One wonders which is more important for the nation: producing nuclear warheads and delivery systems that the government claims are needed, only as a deterrent and not for first use, or education of thousands of children; or for that matter, use of such funds to build up the infrastructure of the utterly inadequate university and research system, so that they could form the backbone of the industrial base of the country, with associated amplification of benefits.

Thrice before, in wars with Pakistan, we have won. We did not need nuclear weapons to defend ourselves against them. But when we exploded the nuclear bomb in 1974, we changed the situation drastically. Pakistan demonstrated its capability shortly after our explosions last May. Ours seemed almost as if they were intended to call

Pakistan's 'bluff' about their capability. It turned out, that they too developed them and altered the balance of power in the subcontinent, when we clearly had superiority in conventional weapons, recognized even by Pakistan.

If we have the courage to be honest with ourselves, we have to admit, that it was we who started the nuclear arms race in our subcontinent. Why should we be surprised if China helped Pakistan, considering the adage, 'any enemy of my enemy, is my friend?' It has been stated by the minister for External Affairs that in any case Pakistan was developing nuclear weapons and getting ready to explode them even before we started our recent exercise. May be so. We should then have waited and let Pakistan explode their weapons first. We demonstrated our capability in 1974 itself. One could assume that work was going on in BARC to refine the technology to build better bombs. But should we have invited the stigma of being the first to reignite the dormant nuclear fire in the subcontinent?

In any case, it is no longer clear what we should do with our nuclear stockpile, such as it is. Whether it is the currently estimated 65 warheads or General Sunderji's minimum of 150 for deterrence capability, the question arises: 'what do we do after these are exhausted'? If it is a war with China, we will presumably retaliate with our 150 warheads, after China launches theirs on first use, with 300 still remaining in their stock. Should we then in anticipation, mount a crash programme now itself to close the gap to have our 450 warheads to match theirs, and keep on producing more to keep up with them and bankrupt ourselves in the bargain? Such a nuclear race will be utter madness both militarily and economically.

If on the other hand, it is argued that our deterrence capability is only to meet a challenge from Pakistan, the roles will be reversed with Pakistan trying to catch up with us in a nuclear race.

The only silver lining in this whole affair, such as it is, is that neither Pakistan nor India can now afford to start even a conventional war, for fear that it may escalate into a nuclear holocaust by error of judgment, with disastrous consequences for both. But sooner or later, the two countries will have to give up their present inflexible and untenable

stands and negotiate in good faith, in a spirit of give and take.

If the big five want a commitment from India and Pakistan to sign CTBT, NPT, etc. the least that they could obtain is an unambiguous guarantee that such a commitment will not expose them to a nuclear ransom/attack.

Even if it is signed, CTBT does not stop us from making the bombs. It only says we cannot test them. But this is not the real issue. We should voluntarily refrain from stockpiling the bombs. It is a losing proposition. We should continue to press for universal nuclear disarmament.

The US was undoubtedly churlish in imposing sanctions on India and Pakistan. When an earlier (Reagan) US administration indulged in such an exercise, Indian scientists and technologists had achieved some extraordinary breakthroughs in critical technologies that were of vital interest to us. We should look upon this US decision as a blessing in disguise and an opportunity to bridge technology gaps, not for preparing to wage wars of mass destruction, but for improving our lot, and not complain about denial of equipment or being treated as second class citizens among the western scientific community. There would be enough challenging tasks, if our work also is inspired by our own societal requirements.

If we want to be listened to politically, we have to be either morally or militarily or economically strong. The day Gandhiji, the apostle of peace and nonviolence was assassinated by Godse, we lost the right to wear the mantle of moral righteousness, and assume the stance of the keepers of the conscience of the civilized world. Military strength has no meaning if we are not economically strong, as it cannot be sustained in the long run. Common sense dictates that our priorities cannot call for making more bombs, given our poor economic base and neglected infrastructure, with poor energy supplies, poor roads,

poor telephone services, poor transportation systems, poor water supply, poor health and family planning systems, poor sanitation and poor educational and research bases. Establishing such infrastructure only will enable us to transform ourselves into a developed country.

In all these, we the scientists and technologist have an important role to play. One would suspect that to win the argument, the DAE scientists have used the so-called need to confirm their ability for building bombs to demonstrate our deterrence capability. Lest we forget, we should remember, we have started the nuclear race in the subcontinent. In this, our scientists were supported by the politicians for its obvious 'political mileage' such as it is. The power to destroy whole civilizations has been given into the hands of the politicians. We cannot any longer say, 'we are not responsible for what the politicians would do with these tools of mass destruction we are providing them'. If the politicians say, it is only a deterrent and they do not propose to exercise the option of first use, the question arises: 'how much deterrence is deterrence?' Enough to have the potential to bankrupt ourselves and divert funds that are more urgently needed in other areas? The External Affairs Minister was recently reported to have stated that a number cannot be assigned to it. This is precisely the problem. Does the government seriously think that we have the wherewithal for indulging in the nuclear race and respond to all these above requirements? It would be an utter and absurd distortion of national priorities, if it were to be so.

It has become clear for quite some time, that in the contemporary world, nuclear war as an extension of foreign policy to resolve issues, has become irrelevant. We should examine very carefully this compulsion of ours to join the nuclear club. The S&T community has a moral obligation to educate the society and the nation. The situation has

become too dangerous to be left exclusively to politicians and a few 'establishment scientists' cloaked in secrecy, to determine our destinies.

In his State of the Union address before laying down his office, President Truman, the man responsible for dropping of the nuclear bombs on Hiroshima and Nagasaki, belatedly realized from his personal involvement, the horrors that can be let loose. He stated, 'the war of the future would be one in which man could extinguish millions of lives at one blow, demolish great cities of the world, wipe out the cultural achievements of the past – and destroy the very structure of a civilization that has been slowly and painfully built up through hundreds of generations. Such a war is not a possible policy for rational men'. In his foreword to the book by the first Scientific Adviser to the Minister of Defence of the Government of India on *Nuclear Explosions* ('56 and '58 editions, Publications Division, Government of India), India's first Prime Minister Jawaharlal Nehru had this to say: 'Enough is known, however, to give us some kind of a picture of a war in which these weapons are used. War is associated with death...'. 'We have now to face death on a colossal scale and what is much worse, the genetic effects of these explosions on present and future generations. Before this prospect, the other problems that face us in this world become relatively unimportant...'. 'These conclusions (of Kothari) expressed in restrained scientific phraseology, tell us of the fate in store for us if we are not wise enough in time to put an end to this horror'. Nehru said this four decades ago. Is this the scenario for which we should prepare ourselves and is this the club, India wishes to join as an active partner?

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