

Our Nuclear Scam

○ Dr B.K. Subbarao

Our first hydrogen bomb test on May 11, 1998 was a failure. I was the first person in India to publish an analysis of this failure. The analysis was carried by *The Hindu* dated May 20, 1998, in their national page with caption “Scientist questions DAE claim” and by the *Frontline* dated June 19, 1998, as part of their cover story, with the heading *Hydrogen Bomb Issue is Crucial*. My analysis has been amply corroborated by the published opinions of a variety of world experts

(A synopsis of my analysis is given later).

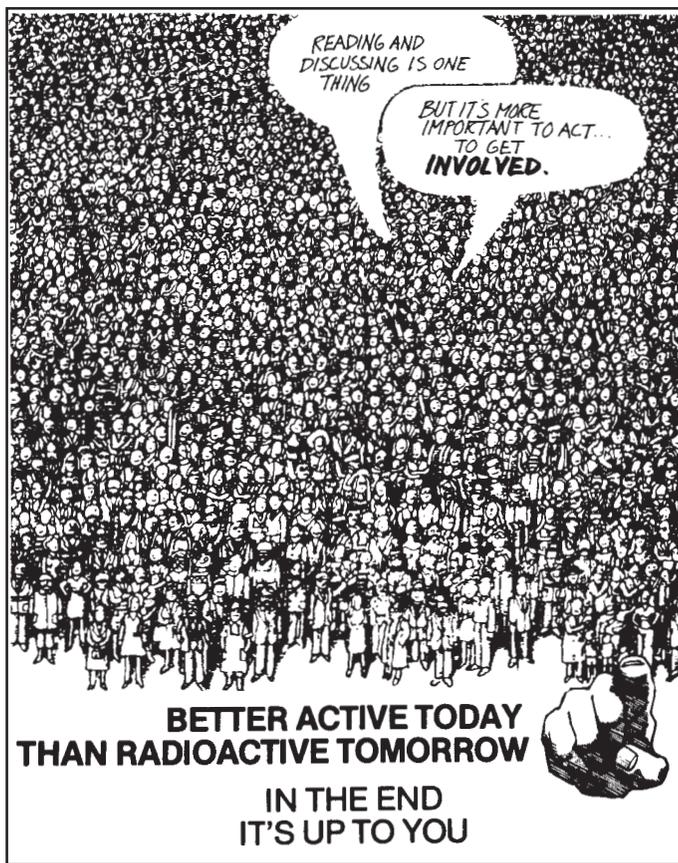
Subsequent attempts of government scientists to dispute my conclusion that India has not carried out a successful hydrogen bomb test (as well as the similar conclusions of independent scientific experts from all over the world) have not proved convincing. In addition, the selective and biased use of publicly verifiable data by these scientists in attempting to defend their original reports of the Pokhran test results has cast further doubt on the accuracy of all their previous reports.

Our national security, instead of being strengthened, has been seriously weakened as a result of the hydrogen bomb test failure, but even more so by the continuing cover-up of the actual test results. I respectfully request that the government of India hold an immediate judicial inquiry by a judicial commission headed by a Supreme Court judge, and including an independent group of expert scientists and citizens of stature and integrity, to find out what were the actual results of our

nuclear bomb tests. Basing our nuclear weapons policy on wrong data endangers the lives of our people. Only by following this suggested course of action will the people of this country be able to determine their national security policies in a rational and democratic manner.

The Minister of State for External Affairs, Ms. Vasundhara Raje, referred to my name and told the Lok Sabha, “the scientist Dr B.K. Subbarao, had based his claim [that there was no

successful hydrogen bomb test] on his interpretation of the seismic data issued by India and foreign seismic stations and the conclusion drawn by the scientist that the Pokhran nuclear tests did not comprise a hydrogen bomb was erroneous and it was not possible to determine the nature of an explosive device by looking into seismic data.” (Refer PTI news item in *The Hindu*, dated July 27, 1998) However, the question is not whether Pokhran-II comprised a hydrogen bomb but



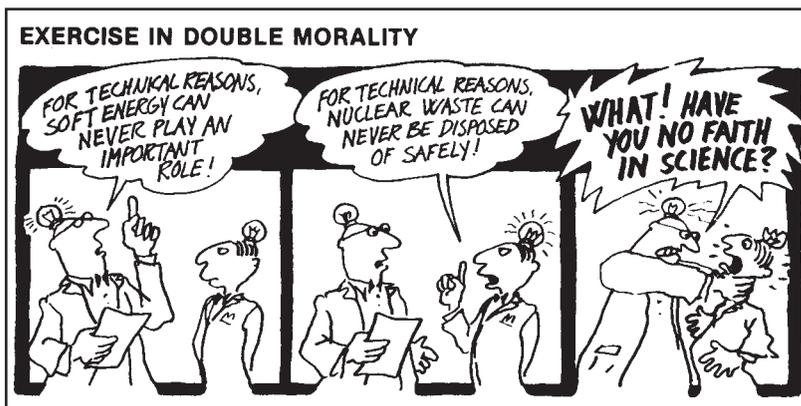
Courtesy : NUCLEAR POWER

whether the hydrogen bomb being tested at Pokhran exploded successfully. If the combined yield of all the devices exploded did not exceed 25 kilotons, I cannot see how we can conclude that the hydrogen bomb test succeeded.

Global Seismic Readings

Seismology is the main monitoring technology for detection of underground explosions as well as for earthquakes. The May 11, 1998 tests were detected and located by routine operational algorithms of the Prototype International Data Center (PIDC) and the U.S. Geological Survey (USGS). The PIDC posted its preliminary estimates of the location of the explosions on a public access seismicity listing just over an hour after the detonation. The USGS also announced the explosions within a few hours after the detonation. Both the PIDC and USGS produced a revised location after collecting more data. There was also monitoring by various other seismic stations round the globe.

The seismological readings showed that the total yield on May 11, 1998, the day the government scientists announced the hydrogen bomb was exploded at Pokhran, was less than 25 kilotons. *The New Scientist* on May 23, 1998 reports the assessment of Dr Frode Ringdal, Scientific Director of the Norwegian Seismic Array near Oslo, which is also part of the global seismic network: "The blast (May 11, 1998) registered clearly in Pakistan, Canada, Russia, Australia and here (Oslo). All the traces show it was at most 25 kilotons. Conventional wisdom states that 10 to 25 kilotons would be too



small a yield to have been a full test of a thermonuclear weapon. In addition, in the present case, according to the claim by Dr Chidambaram, there were two other nuclear explosions at the site on that date—a fission device produced an explosive yield of 15 kilotons and a fission trigger produced another 12 kilotons. Thus, the sum of the yields from these two reported fission sources is 27 kilotons, which is close to the yield indicated in the seismological readings. This similarity suggests strongly the fusion device (hydrogen bomb) failed to give any distinctive additional yield of sufficient magnitude to demonstrate a successful hydrogen bomb explosion. It is, therefore, possible to conclude that the hydrogen bomb test failed."

Terry C. Wallace of the Southern Arizona Seismic Observatory (SASO), Department of Geosciences, University of Arizona, published his research work in the September, 1998 issue of *Seismological Research Letters* in an article titled "The May 1998 India and Pakistan Nuclear Tests". Based on his analysis of data from 22 seismic monitoring stations around the world, Wallace determined that the May 11 explosions in India had

a combined force of no more than 15 kilotons, so small that, in his view, it probably involved a less sophisticated fission bomb instead of a thermonuclear H-bomb. Wallace's research work prompted Gregory van der Vink, Director of Planning at the Seismic Monitoring Consortium, to assert, "It is clear that the seismic data we see is not consistent with the claims that are coming out of both countries (India and Pakistan). For the first time, we have an independent ability to question the validity of their claims."

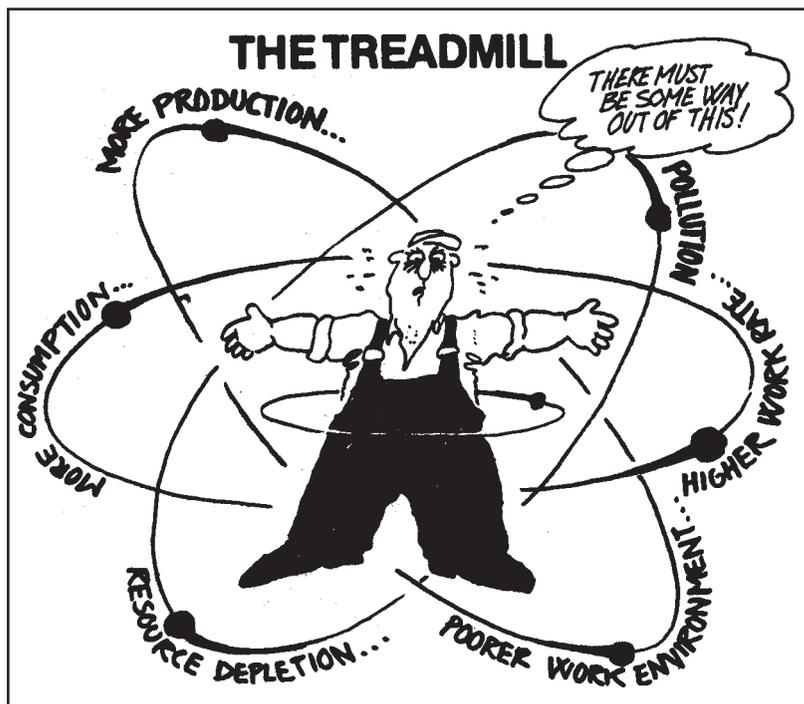
Experts at Los Alamos National Laboratory, Princeton University and the Incorporated Research Institutions for Seismology, a consortium of 90 research universities that operates a global network of more than 100 seismic monitoring stations, endorsed this study's conclusions about the nuclear blasts in India and Pakistan. "Essentially, my view and the view of my colleagues here is that it is well-grounded work," said geophysicist Hans Hartse at Los Alamos in New Mexico. "We find it all perfectly acceptable and tend to be in agreement." At Princeton, physicist Frank von Hippel, who until recently was Assistant Director for

National Security in the White House Office of Science and Technology Policy, said of the Wallace study: "It seems pretty convincing to me."

Indian Position

For Indians, there is an additional way to discover what actually happened, that is, by comparing the claims of their nuclear scientists after the May 1974 nuclear test with the claims now being made after the May 1998 nuclear tests.

According to R. Chidambaram and R. Ramanna (from a scientific paper "Some Studies on India's Peaceful Nuclear Explosion Experiment", published as part of *Proceedings Panel Vienna, IAEA (1975; pages 421-436)*, India's first nuclear test on May 18, 1974, gave a body wave magnitude (mb) of 5.0 or 5.1 on the Richter scale and the yield was estimated to be 10 to 12 kilotons. According to S.K. Sikka and Anil Kakodkar, the present Director of BARC, the nuclear tests in May 1998 gave a mb equal to 5.2, only slightly higher than that of the 1974 blast. Their research work appeared in BARC Newsletter No. 172, May 1998, available on the internet at <http://www.barc.ernet.in>. The title of their article is "*Some Preliminary Results of May 11-13, 1998. Nuclear Detonations at Pokhran*". However, despite the claim of a magnitude of just 5.2, Sikka and Kakodkar concluded that the yield of POK2 detonations (May 1998 tests) was about 60 kilotons. Thus we see that Chidambaram and Ramanna reported the yield of the May 1974 Pokhran-I nuclear test at less than 12 kilotons though it had a Richter scale value of 5.1 mb, whereas Sikka and Kakodkar, despite their reported Richter



scale value of 5.2 (mb value), claim a yield of 60 kilotons for the May 1998 nuclear tests. Both the 1974 test and the 1998 tests were done in the Rajasthan desert and, therefore, the terrain was similar for both the tests.

All this is evidence enough to show that India's Pokhran-II nuclear tests in May 1998 can be termed a science scam. They require a close review by an independent group of scientists to safeguard our national security. The vitality of a modern nation's science, to a large extent, is built up from the pursuit of accurate, publicly verifiable data using the scientific method. In that process, the decisions based on mere assertions in science without presenting the evidence on which the assertions are based can be fatal to the nation. Crucial decisions which affect the life and environment of the present as well as of future generations in India are being based on the non-verifiable claims of our most senior government nuclear scientists.

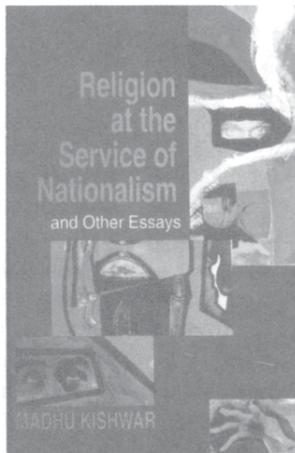
In the Pokhran-II experiments, Indian nuclear scientists failed to achieve what they planned. Yet, the Pokhran-II experiments are being mistakenly hailed in our country as the greatest of our scientific and technological achievements. Unfortunately, the nuclear scientists who led these experimental nuclear tests in May 1998 have become the Indian people's sole source of information about their outcome, and also have become both the advocates for, as well as the judges of, their asserted accomplishments. Mine was the first voice and also the lone voice in India to speak out about the failure of the May 1998 nuclear tests. Nuclear diplomacy based on mistaken claims is dangerous to national security. Therefore, the government of India needs to follow another route to determining what actually happened on May 11, 1998 at Pokhran. The judicial inquiry I urge the Prime Minister to undertake, is urgently required in the interest of the nation. □

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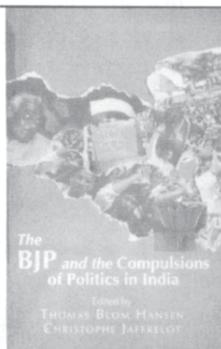
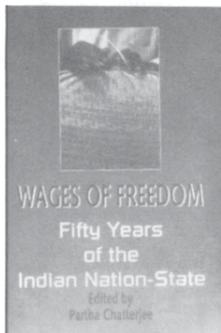
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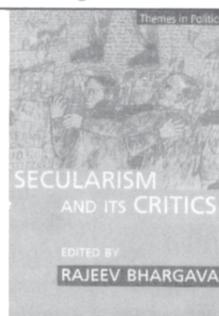
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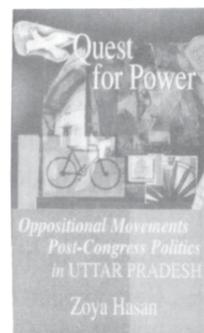
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