## *Pokhran tests a key inflection point in India's history: Anil Kakodkar*

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### contamination of any kind,' says Anil Kakodkar, the then Director of BARC.

The Sunday Guardian spoke to Dr Anil Kakodkar, the then Director of BARC (Bhabha Atomic Research Centre) when the Pokhran II nuclear tests were conducted on 11 and 13 May 1998. Dr Kakodkar shared his experience of being part of both the nuclear tests in 1974 and 1998 and explained the planning, challenges and his involvement in the nuclear tests that made India a nuclear capable state.

#### Excerpts:

### *Q: You have played a significant role in the Pokhran tests; looking back, how do you view the Pokhran tests?*

*A:* Pokhran tests were an important point in India's contemporary history, I think it is an important inflection point in the history of the country. It was indeed a game changer for India at that point; because of the test, India came out declaring itself as a nuclear weapons state. In addition to that, I think it also brought home the point that Dr A.P.J. Abdul Kalam used to say—strength and respect. Although in the aftermath of the tests, there was a lot of anger and restrictions were imposed on India, soon enough, the world at large realised that India has arrived and this has an impact on our high technology trade. Therefore, there was a major transition compared to what the situation was earlier and what the situation is now. Also, in terms of geopolitics, the view of the world looking at India has changed since then.

### *Q: From the point of ideation of this ambitious project to the point of execution, what was the role played by you?*

*A:* At an individual level, I am a mechanical engineer by qualification, so in terms of the assembly to the delivery of the intended functions, I was overseeing all of this. That was the role I played in 1974 and that continued to be my role even in 1998, although the 1998 test was a weaponist version, while the 1974 was an experiment. More than that, during 1998, I was heading the BARC (Bhabha Atomic Research Centre) as Director BARC and BARC is the place where the entire nuclear works were done; for example, taking care of the nuclear components, the weapon design, the analysis, and also the instrumentation to assess the test performances.

Having said this, it was very important for us to ensure the aspect of safety so that the test remained fully contained and there was no radioactivity contamination of any kind. And then of course, coordinating with the DRDO which brought the explosive component, and then the overall integration of the project.

The third aspect was keeping the secrecy of the project and for this, we had to work with a very small team, even the very senior officers were multitasking.

It was a team effort and this would not have been possible if there wasn't a great team.

# *Q: The Pokhran tests have changed how India is looked at geopolitically and you were a very important part of the entire project. How do you personally feel about your involvement in the Pokhran tests?*

*A:* Today, it gives me immense satisfaction to be a part of both the Pokhran tests and it is an incredible feeling. It is a job well accomplished. But there was a lot of hard work and planning that went into making it a success and changing India forever.

This was a project that was going for a long time, research, development and other activities for the tests were on for some time and it is of course a continuing activity. In BARC, we look at all activities in a comprehensive way, it is not like we look only at the emission mode and ignore the fundamentals. There is broad-based research covering subjects that are important and then there is development of the concepts, then proving of the concepts, then comes making of the components and a robust design. And then finally, put the whole thing together for the qualification and testing. And of course, as we come closer to actual tests the pace of activity increases. A lot of work with regards to coordination at the Pokhran site also had to be undertaken. You have to create a lot of infrastructure preparation. On one side, there was this scientific aspect and the other side, there was this implementation of a large coordinated project.

#### *Q: What were the challenges that you had faced in the execution of the Pokhran tests and how did you overcome them?*

*A:* One of the significant scientific challenges was to maximise the output of the test. We all knew that such a chance would never come; so for all of us, it was a priority to maximise whatever can be done out of the test and the information set. Then of course, conducting a large operation with the required secrecy and we could not let things leak out as there would have been unintended consequences if things got out and for this, we had kept the size of the team to a minimum. All part of the operation would multitask, even the senior officers.

#### Q: Why was Pokhran selected as the site of the test?

*A*: Pokhran is a very secluded site, it is in the middle of a desert, that was one of the reasons. Moreover, the Pokhran range is a military range and it is very large in size, so it's kind of away from the population and at the same time, the geology of that place I think is quite suitable. Being a large military range, there are always things which were going on there and, therefore, maintaining secrecy was much more easily possible, compared to a new place.

#### Q: Then comes the sanctions, I am sure you all must have anticipated this?

A: Yes, of course. There has been a lot of discussion and a lot of reviews about

what will be the aftermath of doing such a test, and also, how we should face it. There were big disagreements by different people, which is of course only to be expected. And well, this is where the leadership counts. But ultimately, it worked out quite well.

Talking of sanctions, we had our own concern in the sense what will happen to the nuclear power program, which is a fairly complex technology. And even at that time, we knew that going forward, it's going to be important, so we had to make sure that the nuclear program must continue and must grow and we have been quite successful in it. Initially, of course, there were quite some difficulties because of the sanctions, but very soon, I think the world realised why we did it. People put restrictions because they don't want you to be a nuclear power since it's a security issue for them also. When India crossed that kind of point, they realised that the sanctions are not going to stop India from becoming a nuclear weapon state. The sanctions certainly had delayed the nuclear power program quite a bit by various restrictions. I think there were kind of enough signals going around essentially leading them to conclude that India is a responsible country with advanced nuclear technology. Then also came global commerce with its own rationale. So, it sort of changed over a period of time and the changing geopolitical situation also helped in that process and slowly it enabled India to kind of get into the mainstream. I was happy I was not only participating in the conduction of tests, but also participating in smoothening these international relations through development of civil nuclear cooperation. So now I think like any nuclear weapons state, we are able to pursue nuclear technology for energy, for other applications, peaceful applications, atomic energy and also nuclear technology for security.



On site: India's second nuclear test in 1998

*Q: It's been 25 years since the last test, why have we not conducted any other nuclear tests? Have we accomplished what we had to accomplish? Is* 

#### *there no technological advancement in this field which needs to be tested with time?*

A: This is an important question. The first point that we need to recognize is that conventionally when you deliver a weapon to the users and in this case the Indian armed forces, you have to demonstrate the level of reliability, and that level of reliability in one simple and conventional way is to keep on doing multiple tests so that you improve the design progressively and many countries have done it. We knew the kind of situation India was in at that time and we have also seen the restrictions put on India after the 1974 test and carrying forward with the nuclear programme was even more difficult because of the restrictions and, therefore, it was clear that when we do the second test, the restrictions would be more stringent and now, we had a choice that we defy the world and do more tests. But this would come with its consequences and we would become a secluded country in the world sphere. Therefore, we decided, whatever we do, we must maximise the ability to create nuclear data from this one test and we did exactly that. With the data we gathered during those tests, which were standardised for the available weapon system, we have secured our nuclear test. I know some will argue here that we need constant testing and we don't believe what we don't see. We have kind of identified under what circumstances we will not test and those circumstances remaining guaranteed is important for it. So, it's not as if we have given up the entire thing, but I don't think that one can think of more tests at the present point of time.

For this purpose, I think that we should take the subtle way to strike a balance —that is to balance security deterrence and development together. So we are not physically testing the weapons or testing nuclear payloads with weapons. We are further researching advanced technologies and technological advancement in nuclear weapons in the laboratory and not physically testing it. I am personally quite convinced and quite satisfied about what we have done.

#### *Q: How much nuclear warhead is enough for a country like India? Are there any criteria to determine this?*

*A:* There is no point talking about numerical superiority, the important point is whether we have been able to create a credible deterrence and the answer is yes. We must ensure that our posture, our policies deter the adversaries from using the weapons of mass destruction. I don't think any one of us wants to get into this arms race.