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The man behind India's 'Star Wars'

In fact, he is considered the architect of advanced missile technologies and smart guided weapons technologies in India

By Swati Sharma

He's known as India's 'Missile Man' but Dr G. Satheesh Reddy, chairman of Defence Research and Development Organisation (DRDO) is not someone who will rest on his past laurels. Dr Satheesh played a pivotal role in the development of systems that guide a missile, travelling at hypersonic velocity, to a satellite 300 km away. Known for his vision and capability to develop indigenous technologies, Dr Satheesh, owes a lot to the resilience and unimaginable dedication of his parents.

"My father would sow the seeds in the field and water them daily. He would nurture them for months before we could see any visible results. We knew the importance of perseverance and hard work. Sometimes the missions would fail and missiles would crash but each failure was a learning experience. Once a path is decided, one has to walk on it. There is no looking back," says Dr Satheesh, who was recently awarded with the Honorary Fellowship by the Royal Aeronautical Society. It is the world's highest distinction for achievement in aerospace domain.

While studying in a small village in Andhra Pradesh, he never knew anything about England or that he had to prove his mettle in the field of aeronautics. It was a combination of perseverance, dedication and patience throughout his life that got him this far. "After completing my engineering, I was very clear that I wanted to work for the nation – at ISRO or DAE or DRDO. As an electronics engineer, when all my classmates were moving to the US, I wanted to be at the forefront of science and technology in India. In those days we were inspired by India's progress in atomic energy and rockets. It was inspiring to read about the SLV launches. I was first selected to join DRDO and since then it has been my life," says Dr Satheesh, who is the Secretary Defence R&D.

In fact, he is considered the architect of advanced missile technologies and smart guided weapons technologies in India.

It is a known fact that science and research is a hard subject. The difference of a single millimetre or gram can mar an endeavour. "Each success leads to more work as does each failure. The recent success of Mission Shakti gives me immense satisfaction as a leader. You can imagine the precision needed to hit a target with centimetre accuracy at 300 km altitude in space," explains Dr Satheesh. He was born and bred in Mahimalur near Athmakur of Nellore district in Andhra Pradesh.

Reminiscing his childhood days and early struggles in life, Dr Satheesh says that his parents were extremely hard working. In fact his father would be working in the fields by 4 am, while his mother would tend the cattle by sunrise. "Their work would continue even after sundown. We were naturally inspired to work hard like them. We would sleep in our teacher's house regularly. We had no electricity in our house till I was in Class 7. We studied under lantern lights," says Dr Satheesh.

He was also the first scientist from India to receive the Silver Medal from the Royal Aeronautical Society, London.

According to him, science and research teaches one to be humble and respect other's opinions and views. He attributes his humility to his humble rural background. Not many know that Dr Satheesh considers former president Late Dr APJ Abdul Kalam as a source of inspiration. "Power has no place in science," he says. The DRDO is working tirelessly for the nation. When the organisation is going through such exciting times, how on earth does he fit all this into his personal life? "My wife Padma is very supportive. My two children understand that long hours in office means I love them more. I owe them a lot for their unconditional support," says the scientist, who feels blissful when his visits places of worship with his family.

http://www.indiandefensenews.in/2019/12/the-man-behind-indias-star-wars.html

THE NATIONAL INTEREST

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This means drama: Indian missile defense is raising tensions with Pakistan

A defensive effort that is making war more likely

By Michael Peck

Key point: India has a long way to go until its defenses are ready, but Pakistan will not wait.

India says it has successfully tested an interceptor capable of shooting down ballistic missiles.

But could this trigger a nuclear war with Pakistan?

On August 2, the Defense Research Development Organization (DRDO) -- India's equivalent of the Pentagon's DARPA research agency -- launched an Advanced Area Defense (AAD) missile from Abdul Kalam island off India's eastern coast.

"The endo-atmospheric missile, capable of intercepting incoming targets at an altitude of 15 to 25 kilometers [9 to 16 miles] was launched against multiple simulated targets of 1,500 kilometer [932 mile]-class ballistic missiles," according to the DRDO announcement.

"One target among simultaneously incoming multiple targets was selected on real time, the weapon system radars tracked the target and the missile locked on to it and intercepted the target with a high degree of accuracy. The complete event including the engagement and interception was tracked by a number of electro-optical tracking systems, radars and telemetry stations. All the mission objectives were successfully met."

India's missile defense program is a two-tiered system: the Prithvi missile (derived from the Prithvi tactical ballistic missile) for exo-atmospheric intercepts in outer space, before they near the target, and the Advanced Area Defense missile for endo-atmospheric intercepts within the Earth's atmosphere, in the terminal phase when the target warhead is making its final descent.

In that sense, it is similar to the 1960s U.S. Anti-Ballistic Missile System, which used Safeguard and Sprint missiles, or any integrated air defense system. A long-range interceptor to take out the incoming missile far from the target, and a short-range point defense weapon to destroy any missile that penetrates the long-range screen.

Previous tests of Indian interceptors targeted short-range Prithvi ballistic missiles on a trajectory that mimicked medium-range missiles. The Diplomat magazine suggests that the dummy target this time could have been an Agni, an intermediate-range missile capable of carrying nuclear warheads.

Indian press trumpeted that India's missile defense is a homegrown program developed by India, rather than imported from Russia and America as are so many Indian weapons such as jet fighters and tanks. That's no small point of pride for the world's second most-populous nation, once the poster child for poverty, and now the world's sixth-largest economy.

Interestingly, while India boasts of developing its own missile defense system, it is also buying Russian S-400 air defense missiles capable of intercepting missiles as well as aircraft.

"The S-400 acquisition, which has some utility for missile defense, suggests that India is interested in the capability and not merely letting DRDO have a science project," Christopher Clary, a professor of international relations at State University of New York Albany, told *The National Interest*.

But there is another danger with Indian missile defense, as history shows. When America and the Soviet Union developed anti-missile systems in the 1960s, the opposing superpower either built more missiles, or increased the number of warheads on existing missiles, to saturate enemy defenses.

So what will Pakistan do?

India and Pakistan "are already in an arms race for all intents and purposes and have been so for some time," Georgetown University professor C. Christine Fair, who has written on the Pakistani military, told *The National Interest*.

"There is, of course more nuance: Pakistan has the world's fast growing nuclear weapons program. India has chosen not to reciprocate in growing its stockpiles. Pakistan has and is trying to acquire tactical nuclear weapons while India has demurred."

"Pakistan will field more warheads on more delivery vehicles than it would in the absence of BMD [ballistic missile defense], Clary says.

"Pakistan could develop multiple warheads for its current ballistic missiles, or develop short-range tactical nuclear weapons and cruise missiles that are harder to intercept."

In turn, a Pakistani buildup might prompt an India buildup, sparking a vicious cycle reminiscent of the Cold War.

Ironically, India is notorious for developing home-grown weapons, such as aircraft and tanks, that take much longer to develop than expected, and are plagued with problems when they are fielded. But as always with nuclear weapons and missile defense, perception is everything.

"The biggest problem from India's side is that it all too frequently announced that it has a capability which mobilizes Pakistan to innovate when in fact India is a long way from achieving the stated capability but Pakistan has already developed a counter measure," Fair warns.

https://nationalinterest.org/blog/buzz/means-drama-indian-missile-defense-raising-tensions-pakistan-104992