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Make in India products developed by DRDO are world-class and have huge export potential, says Dr G Satheesh Reddy

DRDO develops critical defence technologies and products to meet the requirements of the Indian Armed Forces, says Dr G Satheesh Reddy

By Huma Siddiqui

Products developed by the Defence Research and Development Organization (DRDO) including a range of Missiles, Armaments and Ammunitions, Avionics, EW systems, Sonars, Torpedoes, Communication Systems, have huge export potential. In an exclusive interview, *Dr G Satheesh Reddy,* Secretary, Department of Defence R&D and Chairman, DRDO tells *FE Online* that products based on DRDO technologies are being exported by the industry as well as by the DPSUs.

Following are excerpts

During the recently concluded DefExpo, the concentration was on exports. What is your view on this?

Many products based on DRDO technologies has already been exported by DPSUs and Industry. Off late, we have increased our thrust on exports of different products and weapon systems, which attracted the attention of friendly countries. As premier indigenous development agency of defence technologies, it is our endeavour not only to build self-sufficiency for the country but also to become a net exporter of defence equipment as envisaged by our Prime Minister Narendra Modi.

Have you identified what you want to export?

DRDO develops critical defence technologies and products to meet the requirements of the Indian Armed Forces. The products developed by DRDO are world-class and have huge export potential. These products include a range of Missiles, Armaments & Ammunitions, Avionics, Electronic Warfare Systems, Sonars, Torpedoes, Communication Systems, Engineering Systems, EO systems, Life Sciences products and many more.

To further facilitate Indian industries for exports, DRDO has evolved a compendium of "DRDO Developed Products with Potential for Export" which will provide the necessary and handy information about the DRDO products, which are ready for export.

Are you satisfied with the response from the private sector companies to whom you have transferred technologies (ToT)?

We have transformed a number of private companies, from simple fabricators to Aerospace manufacturers through ToT and guidance in Quality practices. Now they have become handy in the development of new products as partners. Quite a number of them have come up with their own subsystems designs and manufacture as BTS vendors for many of DRDO programs and Joint Ventures. We are happy the way industry has grown in the aerospace and defence sector with DRDO initiatives and TOTs.

Do you think the recent proposal by the CDS of staggered procurement would impact Make in India initiative?

No, I don't think so.

Make in India, Skill India, Digital India, StartUps – how is DRDO contributing to these initiatives of the government?

DRDO has conducted a competition "Dare to Dream" for startups and we received a very enthusiastic response. Selected top three startups have been given good prize money. We are at the forefront of 'Make in India' through indigenous development of high-value Defence products as we have recently showcased in DEFEXPO. To support the Skill India program, all our laboratories spread over the country offer internship and apprenticeship schemes every year for a sizeable number of technical graduates as well as technicians. We are completely digital in our transactions inside and to the outside world for procurements, payments, documentation etc.

Are the SMEs and MSMEs involved with the DRDO projects?

A number of SMEs and MSMEs are supplying starting from small components to subsystems for all DRDO projects from the beginning. We have nurtured them with development orders in Technological areas. Now they have become partners in all new developments. They are spread across all over the country. There is a government's policy directive now to give some portion of orders to SME/MSMEs, which we are religiously being followed.

https://www.financialexpress.com/defence/make-in-india-products-developed-by-drdo-are-world-class-and-have-huge-export-potential-says-dr-g-satheesh-reddy/1887603/

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Scientists from DRDO & IIT Delhi receive national award for young women showing excellence through application of technology for societal benefits

Dr Shweta Rawat from Defence Institute of Physiology and Allied Sciences (DIPAS), DRDO, Timarpur, Delhi has developed a female-specific Full Body Protector (प्रबला) to safeguard the Female troops deployed in riot control actions.

This gear has been developed in collaboration with the Rapid Action Force using the ergonomic design principle based on anthropometric dimensions specific for female troops. The full Body Protector has unique properties, including anti-stab, anti-puncture, flame retardant and acid resistance. It is designed to assure greater comfort and flexibility to the women forces while deployed in law and order maintenance duties.

Dr. Shalini Gupta, Department of Chemical Engineering, Indian Institute of Technology (IIT), Delhi, has successfully led the development of a technology SeptifloTM, which offers fast and affordable assay for point-of-care diagnosis and treatment of bacterial septicemia, one of the biggest in-hospital killers worldwide.

This has led to the incubation of the start-up Nano DX Healthcare Pvt. She is pursuing unconventional approaches to design novel bio-systems for medical diagnosis, drug delivery, and biomaterials fabrication on a chip. A prototype diagnostic kit, using naturally amplified pathogen-derived endotoxins for early bedside diagnosis of bacteremia has been developed, which is currently undergoing clinical trials. In drug delivery systems, cancer and bacterial therapies have been combined into a single delivery platform in order to co-eliminate cancer and bacterial infections residing inside cancer.

https://dst.gov.in/pressrelease/scientists-drdo-iit-delhi-receive-national-award-young-women-showing-excellence-through

hindustantimes.com

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Autoclave seized from Chinese ship can be for Pak's Shaheen II Nuke Missile

Analysts said DRDO's confirmation exposes the nuclear nexus between China and its all-weather ally Pakistan

By Shishir Gupta

Experts from the Defence Research and Development Organisation (DRDO) have confirmed that an industrial autoclave seized from the Chinese ship Dai Cui Yun can be used for the manufacture of very long-range ballistic missiles or satellite launch rockets. The ship was detained by Customs at Kandla Port while en-route to Port Qasim, Karachi, on February 3 on the basis of an intelligence tip-off and allowed to proceed to the Pakistani port on February 20 after the so-called dual-use (civilian and military) equipment was seized. The autoclave was misdeclared as an industrial dryer.

Hindustan Times first reported the seizure.

Analysts said DRDO's confirmation exposes the nuclear nexus between China and its all-weather ally Pakistan. According to top government and intelligence officials, the DRDO's technical experts and missile scientists informed the Kandla Customs, the ministry of external affairs and national security planners on Tuesday morning that the seized 18 metre by 4 metre autoclave can indeed be used in the manufacture of weapons of mass destruction (WMD) platforms.

"The autoclave can be used for the manufacture of the motor of very long range missiles, with range upwards of 1,500 kilometres or even in the construction of a motor for the launch of satellites. Pakistan has the Shaheen II missile in the 1,500-2,000 kilometre range and the platform was tested last May," said one of the officials, who asked not to be named.

According to the officials, it is now up to India's national security planners to invoke the Weapons of Mass Destruction and Their Delivery Systems (Prohibition of Unlawful Activities) Act 2005 as well as inform the UN under the WMD Convention to expose the nuclear proliferation nexus between Beijing and Islamabad. Under Indian law, any contravention of the above law attracts a punishment of not less than five years' imprisonment which may be extended to imprisonment for life with an added fine. The autoclave was being imported by the Islamabad-based United Construction Company and Hong Kong-based General Technology had booked the consignment.

North Korea, initially, and then China have helped Pakistan in the development of nuclear missile delivery platforms by supplying M-11 and M-9 missiles. Islamabad's nuclear missile programme is not indigenous and is based on Chinese design with Beijing helping Islamabad since the 1980s. It is for no other reason that China is blocking India's entry into the Nuclear Suppliers Group (NSG) till Pakistan is also allowed into the nuclear club.

Given the seizure of the autoclave, India's friends such as France and the US can now pressure Beijing to allow India into the NSG, the officials said, adding that the country's record in context of nuclear proliferation was spotless.

https://www.hindustantimes.com/india-news/drdo-says-ship-cargo-can-be-used-for-missiles/story-IzmcK3jUO7c3edy5NfSBdI.html

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Meet the IISc, UMARS researchers whose bomb detection device for DRDO could change security as we know it

We speak to Professor Umapathy who is a radio spectroscopy expert and one of his students to find out how RaIDer-X, a new explosive detection device developed at IISc and about their future projects

By Rashmi Patil

If you are interested in national security and intelligence sort of subjects, then you will know that the detectors at the airport cannot detect exactly what's in an envelope or whether the liquid in the bottle is really water or shampoo and so on. But with the RaIDer-X, you can detect what is inside the plastic bottle or an envelope even when they are concealed.

Yesterday, when the RaIDer-X, a new explosive detection device was unveiled at the National Workshop on Explosive Detection (NWED-2020) in Pune, the UMARS team from the Indian Institute of Science (IISc) was very happy about it. This device built by UMARS along with High Energy Materials Research Laboratory (HMERL) will now be used by the DRDO in their lab.

The project was envisioned by Professor Siva Umapathy, who is the current Director of the Indian Institute of Science Education and Research (IISER) Bhopal has studied Raman Spectroscopy in-depth and has various patents to his name. He is also part of Universal Multiple Angle Raman Spectroscopy (UMARS) and has played a key role in several other projects. Explaining what led him to develop RaIDer-X, he says, "This idea for this project took birth when I met Subhananada Rao in 2007 during one of the committee meetings in Delhi. He has worked in different capacities in DRDO, HMERL and other organisations. When we were discussing various technologies, I invited him to Bengaluru to see the UMARS Lab. He said since I have expertise in Raman Spectroscopy, why not develop something for DRDO. There were no second thoughts. I agreed to it."

Deepak Kumbhar is a research fellow at UMARS and a part of this project. "Prof Umapathy guided me to build this device along with two other students," he says and explains how it works, "This device uses laser rays to detect anything from a distance of only two metres. When the laser is put on the object that has to be detected, it uses the scattered light around it and reflects in the same path to enter the spectrometer." Once the reading is received, it is compared with spectral readings from various dangerous objects by a computer programme, "The device works on the principle of Raman Spectroscopy. We have stored multiple spectrums of various explosives and chemicals contents and pharmaceuticals. It is a kind of database which we use to analyse the sample or object detected. The sample is analysed with the database through a Machine Learning algorithm. And we get the output to see what exactly it is made of. We call this database a library and we have multiple libraries available worldwide that consist of various chemicals as well as their information."

While one can store as many chemicals as one want in this library, the team has kept more than 20 explosives and 60 chemical samples in their library for RaIDER-X device. How accurate is it? He lets on, "If there is a paper bomb in the envelope then we can detect it without opening it. Similarly, if there is a drug inside a container or plastic then we will be able to find out the same without touching it or smelling it. The device is designed in such a way that it can also detect samples that are in the form of mixtures and not in their pure form. After the successful implementation at DRDO, the same can be used by the other security agencies. "

Talking about how they developed it further, he says, "The project started in 2018 and we were in touch with scientists at HMERL. We developed the design of the device and demonstrated it to them. They approved it and finally decided to build the device. "

At the NWED-2020 exhibition, Prof Umapathy and team received an overwhelming response from various security agencies. Dr G Satheesh Reddy, DRDO Chairman also emphasised that the detection of explosives is a compelling need of the hour. He said, "Security agencies are continuously monitoring vulnerable targets with the help of intelligence agencies to thwart the attempts of anti-social elements. The joint pursuit of academia and DRDO in developing portable devices, which can now be safely and effectively used by security agencies, is vital."

Prof Umapathy and team are working to build another device that can analyse the skin of a human body. It can help us detect the skin diseases as well as chemical composition of the skin. We need not penetrate or take out the skin for testing. It can directly moved on the body to know what one is suffering from. For example, the device can detect diseases like vitiligo and identify various stages of the disease. Using this, the doctor will be able to cure skin diseases.

https://www.edexlive.com/people/2020/mar/03/meet-the-iisc-umars-researchers-whose-bomb-detection-device-for-drdo-could-change-security-as-we-kn-10463.html