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Defence exhibits enthrall visitors on the opening day of science expo

Pune: Eight-year-old Sachin Shinde had heard from his soldier uncle that the Army can lay a bridge over a river in an hour, but it was only on Thursday that he saw it with his own eyes.

The experience left him feeling awestruck. "It is so huge!" was all Sachin could bring himself to say.

The youngster, who was with his father, was merely one among the many visitors on the opening day of the Bharatiya Vigyan Sammelan and Expo at Fergusson College grounds. They were just treated to a demonstration of Sarvatra, a multi-span mobile bridging system, by Defence Research and Development Organisation (DRDO) personnel.

Sarvatra is a 75m-long multi-span mobile bridging system. It comprises five scissor bridges made of an aluminum alloy. Each bridge is 15m wide, and is mounted on a mobile platform. Each platform can be driven from either end. A microprocessor-based control system is utilised to deploy and operationalize the entire system in less than two-and-half hours.

On the first day of the expo, many exhibitors from various fields were on hand to display their latest innovations. Exhibitors included the Council for Scientific and Industrial Research (CSIR), institutions like the CIMAP, Lucknow, and the Bhabha Atomic Research Centre, and academic partners like SP College and Deccan Education Society.

Several small start-ups also brought to the table newly-developed mobile applications and innovations, with functions ranging from measuring key vitals in the human body to academic evaluations and consequent rewards.

But almost all the attention, after the expo was inaugurated by academician Vijay Bhatkar, was focused on the formidable presence of DRDO, and their products in use by the Armed Forces. They also displayed projects that are under development. There were the latest, indigenously developed assault rifles, a flexible pistol-holder augmented with a camera to facilitate better surveillance, scaled-downed models as well as actual launchers for the flagship rockets of the Armed Forces — such as the BrahMos, or the Akash.

Another major draw was a collection of robots which can detect and even defuse explosives in crowded areas, all of which the DRDO claims have been indigenously designed and developed.

"This is incredible.!" exclaimed engineering student Pooja Jain. "I knew the DRDO was going to be there, but I never expected the actual products to be on put display," added Pooja, who was there with her friends.

Private concerns like Bharat Forge and Tata Motors also brought their products designed for the use of the Armed Forces, like launchers for Howitzers of various calibre.

Almost all the items on display wowed the crowd, with the DRDO's mobile shelter receiving visitors as soon as the expo began.

"How can this small a structure accommodate eight people and be unharmed in the event of a nuclear attack?" wondered Samir Mohammad, an engineer. The expo will wind down this Sunday.

In Arm's Way

By Anupriya Chatterjee

The city feted National Technology Day on Thursday with a stunning display of weapons tech at the DRDO as well as Fergusson College campuses. Mirror brings you the top picks

Brahmos Missile

The much-talked about Brahmos missile has been an important part of Indo-Russian ties in history. A shortrange supersonic cruise missile developed for the Navy, it requires on-board power supply in the form of a primary battery for various electronic systems and functioning of pyro-devices; it is presently the world's fastest antiship cruise missile. Brahmos Corp. is currently the only arm of the DRDO that has considered launching itself into the global market, after more than a decade of its inception. India and Russia continue to be in talks to develop a new generation of Brahmos missiles.

■ **At HEMRL, DRDO**

► **Pinaka MK-II**

This multi-barrel rocket launcher produced in India by the DRDO was in service during Kargil war, so has been developed for hilly terrains, too. This technology has gone through multiple changes since the 1990s. In a joint venture with Israel, India decided to implement a new Trajectory Correction System on Pinaka. In April this year, the Indian Army planned to induct eight indigenously developed Pinaka rocket launchers, for which two private entities (Tata and Larsen & Toubro) were roped in for production. Earlier this year, in January, the MK-II version of the rocket was successfully test fired from a defence test facility off the coast of Odisha.

► **Explosive Reactive Armour (ERA)**

Developed by the HEMRL (High Energy Material Research Laboratory on the DRDO campus), the ERA MK-II is a technology used to provide protection to tanks against anti-tank missiles and kinetic energy projectiles. It is adaptable to all the three tanks currently used by the Indian Army – T-72, T-90 and Arjun MK-II. An indigenous technology, ERA MK-II, has been successfully proven in user trials during 2016, and is capable of detecting anti-tank missiles without affecting other performance parameters of a tank. While its performance is at par with global standards, it is also considered to be a very cost-effective and weight-effective armour that will significantly enhance the protection level of Indian Army tanks, come 2018.

► **LR-SAM**

It was a Herculean task for India to develop these Long Range – Surface to Air Missiles, as it was not easy to get all the signatures on the contracts — but finally, this Indo- Israel venture bore fruit. Primarily made for the Navy, tech for this missile was jointly developed by DRDO, Indian Aerospace Industries (IAI), and Israel's administration for the development of weapons and technological infrastructure; DRDO has claimed this is a unique technology, developed in no other country yet. The LR-SAM has a dual pulse rocket motor system (range of 70 km), and was made to detect air-borne threats (anti-ship missiles, unmanned aerial vehicles or supersonic missiles). Union minister of state for defence, Subhash Bhamre, had announced its successful trials in December 2016, and by December 2017 it is expected to be sanctioned.

City's Premier Defence Lab Displays Fruit of Public and Private Tie-Ups

With the High Energy Material Research Laboratory (HEMRL) of the Defence Research and Development Organisation (DRDO) celebrating National Technology Day in the city on Thursday, an exhibition of weapon technology that the organisation administers and develops was inaugurated by former vice-air chief B N Gokhale, AVSM, VM (Retd).

The HEMRL is a premier laboratory that primarily engages in developing rocket and gun propellants, pyrotechnic devices, high explosives systems and the synthesis of high energy molecules. It is also known for working towards self-reliance in the field of defence technology, contributing significantly for strategic and tactical systems.

Emphasising on newer technologies, KPS Murthy, director of HEMRL, shared with Mirror, "There are several projects that are indigenous and technologies, like the LR-SAM missile, an Indo-Israel venture that also has the unique dual pulse rocket system, and continues to be developed in India."

Another topic of note, Pinaka (a multi-barrel rocket launcher) is an evident effort to share contract basis work with private firms, an idea partially promoted in the past few years. But, sources within DRDO said private firms have their own agenda and the army would not benefit much from these ventures. Although the private sector could create a launchpad to create a path for a global market, it is believed that the army may not be wholly served by it.