'Desert Ferrari' and more

TS SUBRAMANIAM

With the Army in possession of 100 of the 124 Arjun Mark I Main Battle Tanks it had ordered, the Combat Vehicles Research and Development Establishment, the Defence Research and Development Organisation (DRDO) facility that designed and developed the tank, has good reason to feel proud and prepare with confidence for the greater challenges that lie ahead. The immediate task, though, is the development of the Arjun Mark II tank, which will have a total of 93 upgrades, including 13 major improvements. The Army has placed orders for 124 Arjun Mark II tanks as well, and like the Mark I tanks, these too will roll out of the Heavy Vehicles Factory (HVF), the CVRDE's neighbour at Avadi near Chennai.

The CVRDE's biggest challenge yet will be the development of the Future Main Battle Tank (FMBT) and unmanned ground vehicles (UGVs). "We are in the process of preparing the requirements and specifications for the FMBT. We have launched technology development projects to improve its gun, engine transmission and suspension," said S. Sundaresh, Chief Controller, Armaments and Combat Engineering, DRDO. The FMBT will have an indigenous 1,500 horsepower engine and it will replace the Army's existing fleet of imported T-72 tanks, renamed Ajeya.

The UGVs will be used for surveillance, mine detection and reconnaissance of areas where nuclear, biological and chemical warfare agents have been used. "We will be launching a big programme on UGVs to meet the Army's requirements. A road map is being worked out in consultation with the Army on their development," said Sundaresh. The completion of the Arjun Mark I project has brought a sense of accomplishment on the CVRDE's vast shop floors. The project was originally sanctioned in May 1974 at a cost of Rs.15.5 crore and a timeline of 10 years. The deadline and the cost were revised in 1980, 1987 and 2000. The cost at the time of the closure of the project in March 1995 was Rs.305.6 crore.

Five formidable-looking Arjun tanks rolled out of the HVF premises on August 7, 2004, marking the culmination of a 30-year saga of struggle that

battled technology denial regimes, the Army's constantly varying requirements, difficulties in organising field evaluations, increase in number of prototypes, and so on. On that day, M. Natarajan, then Chief Controller (Armament and Combat Engineering), DRDO and formerly CVRDE Director, who had been associated with the Arjun project from the beginning, said, "Weapons of this kind take a generation to build.... When the Army wanted us to design a tank comparable with those in the United States, Germany and France, we took it up as a challenge. We had little experience then...." (Frontline, August 27, 2004). Natarajan later went on to become Scientific Adviser to the Defence Minister and DRDO Director-General.

P. Sivakumar, Director, CVRDE, narrated the Arjun saga. A few tanks were delivered to the Army's 43rd Regiment for trials. Five phases of these trials were held at Pokhran and Mahajan in Rajasthan in winter, when the temperature plummets to 5° Celsius, and in summer, when the mercury sizzles at more than 45° C, and on different kinds of terrain. The Army was keen that Arjun should be able to ford waterbodies. Each tank covered 5,000 kilometres and fired 500 rounds of ammunition. The Army wanted a third party to assess the tanks and called in experts from Israel. They subjected the tanks to more tests at the Mahajan range and were so impressed that they called it "a desert Ferrari".

Arjun Mark I has imported content of more than 55 per cent, which includes the engine and the gun control system, which are from Germany, and the gunner's main sight, which is from Belgium. The tank has an excellent weight-to-power ratio, good mobility and accurate firepower. It weighs 58.5 tonnes and compares well with different heavy class of tanks available in the world. It has indigenously developed "Kanchan" armour, which can defeat different kinds of ammunition, and a 120mm rifled gun besides a robust transmission system and a flexible hydro-pneumatic suspension. The remaining 24 of the 124 tanks ordered by the Army will be produced by June this year, Sivakumar said.

As for Arjun Mark II, the CVRDE Director said the major upgrades would include missile-firing capability against long-range targets; panoramic sight with night vision to engage targets effectively at night; containerisation of the ammunition wing; enhanced penetration of Arjun's ammunition; a variety of ammunition; and a painted surface that will camouflage the tank. Other major upgrades, according to Sivakumar, are explosive reactive armour; an advanced air-defence gun to shoot down helicopters; a plough to remove mines; and an advanced land navigation system. Arjun Mark II will have sensors that can detect lasers fired by an enemy tank and alert the tank to fire smoke grenades

that confuse the laser. The first prototype demonstration of Ajun Mark II will take place by June 2011. By 2013-14, the first batch of about 30 tanks will roll out of the HVF, said Sivakumar.

Courtesy: Frontline, Volume 28 - Issue 05, March 2011, http://www.frontlineonnet.com/fl2805/stories/20110311280510000.htm