

## **WRITTEN ANSWERS TO STARRED QUESTIONS**

GOVERNMENT OF INDIA  
MINISTRY OF DEFENCE  
DEFENCE RESEARCH & DEVELOPMENT ORGANISATION  
**RAJYA SABHA**  
**STARRED QUESTION NO.226**  
TO BE ANSWERED ON 20<sup>th</sup> DECEMBER, 2021

**STRENGTHENING RESEARCH AND DEVELOPMENT CAPABILITIES  
OF THE INDIAN ARMY**

226 SHRI SUJEET KUMAR:

Will the Minister of Defence be pleased to state:

- (a) the steps taken by Government to strengthen the research and development (R&D) capabilities of the Indian Army; and
- (b) at a time when major world powers are using Artificial Intelligence (AI) – ushered advancements to boost their defence capabilities, the steps taken by Government to boost AI in the Defence sector in order to achieve our much-needed defence modernisation?

**A N S W E R**

MINISTER OF DEFENCE

(SHRI RAJNATH SINGH)

(a) & (b): A Statement is laid on the Table of the House.

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**STATEMENT REFERRED TO IN REPLY TO PARTS (a) & (b) OF RAJYA SABHA  
STARRED QUESTION NO. 226 FOR ANSWER ON 20.12.2021 REGARDING  
'STRENGTHENING RESEARCH AND DEVELOPMENT CAPABILITIES OF THE  
INDIAN ARMY'.**

(a) Steps taken by Government to strengthen the research and development (R&D) capabilities of the Indian Army:

Department of Defence Research and Development (DDR&D) spearheads the R&D efforts of the country for Armed Forces. Additionally, Department of Defence Production (DDP) and the three Services have also taken concrete steps to augment Defence R&D ecosphere in the country. Defence Acquisition Procedure (DAP) - 2020 has been approved in line with the vision of 'Make in India' with several industry friendly provisions like 'Make-I' and 'Make-II'.

Indian Armed Forces have worked out Long Term Integrated Perspective Plan (LTIPP) and Technology Perspective and Capability Roadmap (TPCR). DRDO has worked out its Long Term Technology Perspective Plan (LTTPP) aligning R&D efforts with LTIPP and TPCR.

While immediate requirements are met through DRDO's in-house and collaborative R&D with industry, the long term technology development is conducted through collaborative efforts with other academic institutions and scientific organizations.

DRDO has established 10 Centres of Excellence (CoEs) in various IITs and Universities across the country. DRDO conducts Advanced Research in academic institutes in big way through Research Boards, Directorate of ER&IPR and various labs directly. More than 250 academic institutions have been funded more than Rs. 1150 Cr. by DRDO.

M.Tech. course in Defence Technology Course have started from the current academic year with approval of AICTE. Ministry of Education has approved 500 PhD scholars to work in DRDO Labs for advanced defence research.

R&D in MSMEs and Startups is supported by DRDO through Technology Development Fund scheme, by DDP through iDEX scheme and by Armed Forces through directorates/organizations of innovations/indigenization/design/repair depots/Weapons and Electronic Systems Engineering Establishment (DRDO-Navy) etc.

Thousands of industries, especially MSMEs and Startups, and technical experts are engaging with the Government in this endeavor. DRDO is engaging industry right from the development stage of the projects. Such industries are given the status of Development cum Production Partners (DcPPs). Industries associated with DRDO further get nominated as Development Agencies (DAs) and Production Agencies (PAs) to ensure smooth transition to production and Product Life Cycle Management. DRDO also transfers technologies to industry at nil or

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minimum cost and no royalty is charged for sales to Indian Armed Forces. DRDO's patents are also now freely available to Indian industry.

DRDO and DDP conduct innovation contests, named Dare to Dream and Defence India Startup Challenge respectively, to encourage startups and individual innovators across the country. An initiative called "iDEX4Fauji" has been launched to source ideas from the frontline soldiers.

DRDO's test facilities and test ranges of Indian Armed Forces are now made open for industry to use. The patents are available for Industry.

All these efforts have led to India becoming self-reliant in many areas like missiles, sonars, radars, artillery guns, torpedoes, electronic warfare systems, military bridges etc.

It is worth noting that AONs of more than Rs. 80,000 Cr. have been accorded for more than 60 indigenous systems.

(b) Steps taken by Government to boost Artificial Intelligence (AI) in the Defence sector:

DRDO has two dedicated laboratories, Centre for Artificial Intelligence and Robotics (CAIR), Bengaluru and DRDO Young Scientist Laboratory (DYSL)-AI, Bengaluru, for application oriented research in AI. All DRDO system laboratories have started AI Technology groups to introduce AI features in all products. CAIR is nurturing Startups in AI. DRDO is facilitating certified courses in AI, producing about 1000 professionals every year.

As per the recommendation of a task force set up by DDP under the chairmanship of Shri N Chandrasekaran, Chairman Tata Sons, and in consultation with all stakeholders, Defence Artificial Intelligence Council (DAIC) has been set up under the Chairmanship of Hon'ble Raksha Mantri, to provide necessary guidance and structural support. Further, Defence AI Project Agency (DAIPA) has been created under the Chairmanship of Secretary DDP for enabling AI based processes in Defence organisations.

DDP has earmarked Rs. 100 Cr. per year for AI projects for Armed Forces.

IAF has established the Unit for Digitization, Automation, AI and App Networking (UDAAN) which is in the process of developing many applications for Campaign Planning and Analysis System, e-Nirikshan etc.

R&D in AI amongst academia and industry is also promoted through projects under ATCs and CoEs, extramural research and TDF schemes of DRDO.

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