

Defence Research and Development Organization [DRDO]

DRDO's full form is Defence Research and Development Organization, and it was established in 1958 by combining three central defence departments.

- They are the Defence Science Organization (DSO), Directorate of Technical Development & Production (DTDP), and Technical Development Establishment (TDEs) of the Indian Army.
- After its formation, DRDO was just a minor organization operating in more than ten laboratories. Currently, it's a pioneering organization strengthening India's defence system.
- It has more than 50 laboratories and has further expanded into multiple disciplines.

Role of DRDO

The role of DRDO has the following roles:

- DRDO was established to fulfil the mission of developing, designing, and leading the production of defence equipment and sensors to strengthen the Indian Defence Services.
- The aim of DRDO is also to prove a technical solution for combat effectiveness and encourage the welfare of troops.
- The role of DRDO also includes developing infrastructure and quality manpower for the defence services and systems of the country.

History of DRDO

Defence Research and Development Organization or DRDO was established in 1958 by the Government of India.

- In the beginning, DRDO was a small organization with 10 laboratories. It has grown rapidly over the years in terms of subject disciplines, achievements, number of laboratories, and stature.
- DRDO's first major project was in 1960 for Indigo to develop Surface-to-Air missiles.
- Currently, DRDO has more than 50 laboratories across the country in different sectors of defence and technology.

Functions of DRDO

Few functions of DRDO include-

- To update and advise Raksha Mantri on the influence of National Security in terms of upcoming progress in science and tech.
- DRDO also designs and executes programs related to scientific research, development, design, and evaluation in fields incorporated under national security.
- Administration of laboratories, ranges, facilities, agencies, establishments, and projects
- DRDO is responsible for overlooking financial matters and other related assistance to institutions, individuals, and universities for the training and study of human resources on components of science and technology that affect national security.
- Consult and cooperate with the Ministry of External Affairs in international relations related to science and technology affecting national security.
- DRDO certifies the design airworthiness of military equipment and aircraft.

DRDO Programmes

Here are a few programs launched by Defence Research and Development Organization [DRDO] -

IGMDP or Integrated Guided-Missile Development Program

- Dr APJ Abdul Kalam was one of the leading forces behind IGMDP. It aimed to make India self-reliant in the field of missile technology.
- The missiles developed were Prithvi, Trishul, Agni, Nag, and Akash.

Highest Terrestrial Centre in Ladakh

- DRDO terrestrial centre in Ladakh is located 17,600 feet above sea level near Pangong lake at Changla.
- It was built as a cold preservation storage unit for natural medicinal plants.

Mobile Autonomous Robot System or MARS

- MARS is a powerful and intelligent robot to help Indian armies disarm land mines and Inert Explosive Devices (IEDs) despite being in hostile surroundings.

- With a few features and modifications, the robot can be utilized to dig the ground and diffuse the explosive device through numerous methods.
- Defence Research and Development Organization [DRDO] strives to make India's defence system stronger to combat any challenges that may occur in the future. Several reputed scientists and technologists have contributed to enhancing DRDO's programs.

Challenges Faced by DRDO

There are various challenges faced by Defence Research and Development Organization [DRDO], such as

- Inadequate budget support.
- Lack of manpower in critical areas
- Cost escalation and delayed outputs
- ISPO is provided with better support from the government compared to DRDO.
- The inadequacy to meet the internal defence demands.
- Lack of combined operation with armed forces.

Recent Developments by DRDO

The Defence Research and Development Organization [DRDO] has successfully test-fired Laser-Guided Anti-Tank Guided Missiles (ATGM).

- The Laser-Guided Anti-Tank Guided Missiles (ATGM) are designed to destroy and test heavily armoured military vehicles.
- Laser Guided ATGM has a tandem High Explosive Anti-Tank warhead. it can defeat Explosive Reactive Armour protected armoured vehicles.
- ATGM has been built with multi-platform launch capability.

Way Forward- DRDO

DRDO can have a commercial arm like ISRO to become a profitable entity. It would help to complete the projects on budget at the right time.

- DRDO should partner with the private sector to build software for defence projects.
- More importance can be given to working on new innovative ideas and building cutting-edge technologies.

In the document "DRDO in 2021: HR Perspectives", the Defence Research and Development Organization has envisaged HR policy, which is a step in the right direction.

