

9 Defence

AS the world continues to shrink and get more and more interdependent due to globalisation and advent of modern day technologies, peace and development remain the central agenda for India. Global attention is shifting to the sub-continent for a variety of reasons, ranging from fast track economic growth, growing population and markets to the untapped socio-economic potential of the region and the growing energy consumption levels.

India's rapidly growing economy, relative size and strategic location in the region thus brings the country into prominence in the world's geopolitics. India, nevertheless, remains committed to peace and stability in the region, which are fundamental for the continued economic development and prosperity of its people.

Apart from a conventional war scenario for which the armed forces are prepared, the increasing ongoing internal security situation of a proxy war scenario also has to be taken into account. The growing menace of terrorism continues to be an area of great concern, where India is facing newer challenges.

With a steadily growing economy, India has a vital stake in a safe and secure world. India and Indians have increasingly become drivers of global growth and prosperity. A strong defence force is a necessary prerequisite for growth, stability and peace. India has been committed to prepare its level of defence preparedness to deter any type of threat both conventional as well as unconventional.

This Supreme command of the Armed Forces vests in the President of India. The responsibility for national defence, however, rests with the Cabinet. The Defence Minister (*Raksha Mantri*) is responsible to Parliament for all matters concerning defence of the country. Administrative and operational control of the armed forces is exercised by the Ministry of Defence and the three Service Headquarters.

ORGANISATION

The principal task of the Ministry of Defence is to obtain policy directions of the Government on all defence and security related matters and communicate them for implementation to the Service Headquarters, Inter-Service Organisations, Production Establishments and Research and Development Organisations. It is also required to ensure effective implementation of the Government's policy directions and the execution of approved programmes within the allocated resources.

The principal functions of the Departments are as follows :

- (i) The Department of Defence deals with Integrated Defence Staff (IDS) and three Services and various Inter-Service Organisations. It is also responsible for the Defence Budget, establishment matters, defence policy, matters relating to Parliament, defence cooperation with foreign countries and coordination of all activities.
- (ii) The Department of Defence Production is headed by a Secretary and deals with matters pertaining to defence production, indigenisation of imported stores, equipment and spares, planning and control of departmental production units of the Ordnance Factory Board and Defence Public Sector Undertakings (DPSUs).

- (iii) The Department of Defence Research and Development is headed by a Secretary, who is also the Scientific Adviser to the Raksha Mantri. Its function is to advise the Government on scientific aspects of military equipment and logistics and the formulation of research, design and development plans for equipment used by the Services.
- (iv) The Department of Ex-Servicemen Welfare is headed by an Additional Secretary and deals with all resettlement, welfare and pensionary matters of Ex-Servicemen.

Integrated Defence Staff (IDS) was created on October 1, 2001 as a sequel to the decision by the Group of Ministers based on Kargil Committee Report. The staff of HQ IDS is provided from three Services, MEA, DRDO, Armed Forces HQ (AFHQ) Civil Services and DoD. IDS is presently functioning as staff in the advisory mode to the Chairman COSC, and is headed by Chief of Integrated Defence Staff to Chairman COSC (CISC).

The three Services Headquarters, viz., the Army Headquarters, the Naval Headquarters and the Air Headquarters function under the Chief of the Army Staff (COAS), the Chief of the Naval Staff (CNS) and the Chief of the Air Staff (CAS) respectively. They are assisted by their Principal Staff Officers (PSOs). The Inter-Services Organisations, under the Department of Defence are responsible for carrying out tasks related to common needs of the three Services such as medical care, public relations and personnel management of civilian staff in the Defence Headquarters.

A number of Committees dealing with defence related activities assist the Raksha Mantri. The Chiefs of Staff Committee is a forum for the Service Chiefs to discuss matters having a bearing on the activities of the Services and to advise the Ministry. The position of Chairman of the Chiefs of Staff Committee devolves on the longest serving Chief of Staff, and consequently rotates amongst the three Services.

Finance Division in the Ministry of Defence deals with all matters having a financial implication. This Division is headed by Financial Advisor (Defence Services) and is fully integrated with the Ministry of Defence and performs an advisory role.

ARMY

The Indian Army is the world's second largest army in terms of military personnel. The basic responsibility of the Army is to safeguard the territorial integrity of the nation against external aggression. In addition, the Army is often required to assist the civil administration during internal security disturbances and in the maintenance of law and order, in organising relief operations during natural calamities like floods, earthquakes and cyclones and in the maintenance of essential services.

Indian Army is one of the finest armies in the world. Modernisation and upgradation of Army is a continuous process to keep the Armed Forces ready to meet any challenge of tomorrow. It is based on five year plans. Focus and core areas of modernisation has been :-

- (a) Improvement in the Fire Power and increased Mobility
- (b) All Weather Battle Field Surveillance capability
- (c) Night Fighting capabilities
- (d) Enhance capability of Special Forces
- (e) Capability for Network Centric Warfare
- (f) NBC Protection.

The main focus for the Artillery is to acquire heavy calibre Guns with enhanced ranges with better fire power mobility. Acquisition of additional Unmanned Aerial Vehicles (UAVs) and Night Vision Surveillance Devices by Artillery will enhance the Surveillance and Target Acquisition capability.

The combat potential of Infantry and Rashtriya Rifles is being comprehensively transformed through a quantum enhancement of surveillance, firepower, protection, communication and mobility requirements. In pursuit of modernisation, the Infantry Battalions are being provided state-of-the-art weapon systems of greater lethality, range and precision, thermal imaging devices, bullet and mine proof vehicles and secure radio communications.

NAVY

The Indian Navy, by virtue of its capability, strategic positioning and robust presence in the Indian Ocean Region (IOR), has been a catalyst for peace, tranquility and stability in the IOR. It has engaged other maritime nations, extending hand of friendship and co-operation. For the smaller nations in our neighbourhood, as well as nations that depend on the waters of the Indian Ocean for their trade and energy supplies, the Indian Navy ensured a measure of stability and tranquility in the waters in our region. To achieve its tasks the Indian Navy is enhancing its capabilities, cooperation and interoperability with regional and extra-regional navies.

INS Shardul, Landing Ship Tank (Large) was commissioned at Naval base, Karwar on January 4, 2007. INS Jalashwa (ex USS Trenton) acquired from US (Navy) was commissioned at Norfolk (USA) on June 22, 2007. She adds a new dimension to the Indian Navy's operational prowess and provides flexibility of use for a large variety of roles. The ship is the first Landing Platform Dock (LPD) in the Indian Navy.

Overseas Deployments are undertaken by ships of the Indian Navy in support of the country's foreign policy. Such missions are for Flag showing, for fostering better relations with friendly foreign countries and for enhancing foreign cooperation. Important Overseas Deployments undertaken in 2007 included deployments to the Persian Gulf, North Arabian Sea, Mediterranean Sea, Red Sea, South China Sea and North West Pacific Ocean.

COAST GUARD

The Indian Coast Guard (ICG) came into existence with the enactment of the Coast Guard Act, 1978 on 18 August 1978. The Coast Guard is responsible for surveillance of the Indian territorial waters and the Indian Exclusive Economic Zone to prevent poaching, smuggling and other illegal activities; to conduct search and rescue operations; to protect and preserve marine environment.

The command and control of the Coast Guard lies with the Director General of Coast Guard, Headquartered at New Delhi. The organisation has three Regional Headquarters at Mumbai, Chennai and Port Blair. The three Regional Headquarters command the entire coastline of India, through 11 Coast Guard Districts and six Coast Guard stations.

The primary duties of the Coast Guard as enshrined in the Coast guard Act include : (a) Safety and protection of artificial islands and offshore installations; (b) Providing protection to fishermen; (c) Preservation and protection of marine environment including maritime pollution and protection of endangered species; (d) Assistance to customs and other authorities in anti-smuggling operations;

(e) Enforcement of the Maritime Laws of India; (f) Safety of life and property at sea; (g) Other duties as and when prescribed by Government of India; (h) Assistance to Indian Navy during war.

AIR FORCE

The past 75 years have been an eventful journey for the Indian Air Force (IAF) from a flight of 'Wapitis' in 1932, to the fourth largest, professionally acclaimed, strategic Air Force responsible for guarding Nation's vital interests. From 1948 to Kargil, the IAF has always fielded winning capabilities. IAF's professional and prompt operations in peace time, at home and abroad and in peacekeeping, have earned many accolades.

To remain competitive and credible, it is imperative that the IAF imbibe modern technologies to achieve long-reach, precision, networked and space-enabled force capabilities. The changing global environment, Regional military capabilities and vital national interests, necessitate a transformational modernization.

The manufacture of HAWK AJT aircraft has commenced in UK. Four aircrafts have been delivered by December 2007 and the deliveries of remaining aircraft will be completed by February 2008. The Hindustan Aeronautics Ltd. (HAL) licence-built HAWK AJT will be delivered by May 2010.

Procurement of Advanced Light Helicopters (ALHs) from HAL as a replacement to its Chetak/Cheetah fleet as a utility helicopter is in progress. An Inter Government Agreement (IGA) has been signed with the Russian Government on October 17, 2007 for joint development of 'Fifth Generation Fighter Aircraft' by HAL and Russians (SDB). The airborne warning and control system (AWACS) are being procured from Israel to meet the long felt need of the IAF. The IAF is in the process of acquiring Medium Lift Helicopters from Russia.

COMMISSIONED RANKS

The following are the commissioned ranks in the three Services; each rank is shown opposite its equivalent in the other Service:

Army	Navy	Air Force
General	Admiral	Air Chief Marshal
Lieutenant General	Vice-Admiral	Air Marshal
Major General	Rear Admiral	Air Vice-Marshal
Brigadier	Commodore	Air Commodore
Colonel	Captain	Group Captain
Lieutenant Colonel	Commander	Wing Commander
Major	Lieutenant Commander	Squadron Leader
Captain	Lieutenant	Flight Lieutenant
Lieutenant	Sub-Lieutenant	Flying Officer

RECRUITMENT

The Armed Forces epitomises the ideals of service, sacrifice, patriotism and our country's composite culture. The recruitment to the Armed Forces is voluntary and every citizen of India, irrespective of his caste, class, religion and community is eligible for recruitment into the Armed Forces provided he meets the laid down physical, medical and educational criteria.

Recruitment of Commissioned Officers in the Armed Forces through UPSC : Commissioned Officers in the Armed Forces are recruited mainly through the UPSC which conducts the following two All India Competitive Examinations:-

(i) National Defence Academy (NDA) and Naval Academy (NA) : The UPSC holds entrance examination twice a year for entry into the NDA and NA. Candidates on completion of 10+2 examination or while in the 12th Standard, are eligible to compete.

(ii) Combined Defence Services Examination (CDSE) : CDSE is conducted by the UPSC twice a year. University graduates are eligible to appear in the examination. Successful candidates join the Indian Military Academy / Air Force Academy or Naval Academy for Regular and Officers Training Academy (OTA) for Short Service Commission.

RECRUITMENT IN ARMY

Apart from the UPSC entries, the commissioned officers are recruited in the army through the following Non-UPSC entries:-

(a) University Entry Scheme (UES): Final/pre-final year students in the notified engineering disciplines are eligible to apply for Permanent Commission in the Technical Arms of the Army as Commissioned Officers under the UES. Eligible candidates are selected through a campus interview by the Screening Teams deputed by the Army Headquarters. These candidates are required to appear before SSB and Medical Board.

(b) Technical Graduates Course (TGC): Engineering graduates/post graduates from notified disciplines of engineering are eligible to apply for Permanent Commission through this entry. After the SSB and the Medical Board, the selected candidates are required to undergo one year pre-commission training at the IMA, Dehradun.

(c) Short Service Commission (Technical Entry) : The Short Service Commission (Technical) Entry Scheme provides avenue for recruitment to eligible technical graduates/post graduates into Technical Arms. After SSB and Medical Board, the selected candidates are required to undergo approximately 11 months pre-commission training at OTA, Chennai.

(d) 10+2 Technical Entry Scheme (TES): Candidates who have qualified 10+2 CBSE/ICSE/State Board Examination with minimum aggregate of 70% marks in Physics, Chemistry and Mathematics are eligible to apply for commission under the 10+2 TES.

(e) Women's Special Entry Scheme Officers (WSES-O) : Eligible women candidates are recruited in the Army as Short Service Commissioned Officers through the (WSES-O). Commission is granted in Corps of Electronics and Mechanical Engineers, Signals, Army Education Corps, Army Ordinance Corps, Army Supply Corps, Military Intelligence Corps, Judge Advocate General's Branch and Army Air Defence.

(f) NCC (Special) Entry Scheme : University graduates possessing NCC 'C' Certificate with minimum 'B' grade and 50% marks in graduation examination are eligible to apply for Short Service Commission through this entry. Such cadets are exempted from written examination conducted by the UPSC and are directly put through the SSB interview followed by a medical board.

Recruitment of Personnel Below Officer Rank (PBOR) : Recruitment of PBOR in the Army is carried out through open rallies. After the preliminary screening of aspiring candidates at rally site followed by document checking and physical fitness test their medical examination is conducted by Recruiting Medical Officers at the rally site. This is followed by a written examination for the medically fit candidates. Successful candidates are sent to respective training centres for training.

There are eleven Zonal Recruiting Offices, two Gorkha Recruiting Depots and one Independent Recruiting Office in addition to 47 Regimental Centres which carry out recruitment through rallies in their respective areas of jurisdiction.

RECRUITMENT IN INDIAN NAVY

Recruitment of Officers : Recruitment for the Non-UPSC entries is made for the following Branches/Cadres of the Navy:-

(i) Executive : Short Service Commission for Air Traffic Control/Law/Logistic/Naval Armament Inspectorate (NAI)/Hydro Cadres and also Permanent Commission for Law/NAI Cadres.

(ii) Engineering (Including Naval Architects): Short Service Commission through University Entry Scheme (UES), Special Naval Architects Entry Scheme (SNAES) & SSC (E) Schemes, Permanent Commission through 10+2 (Tech) Scheme.

(iii) Electrical Engineering : SSC entry is through UES and SSC (L) Schemes, Permanent Commission is through 10+2 (Tech) Scheme.

(iv) Education Branch : Permanent Commission and Short Service Commission schemes exist for this branch.

(v) 10+2 (Tech) Scheme : The Scheme is a Permanent Commission entry for commission in the Engineering and Electrical branches of the Indian Navy. Under the scheme, candidates with 10+2 (PCM) pass qualification, after selection through the Services Selection Board, are sent to the Naval Academy for the Naval Orientation Course. Thereafter, they undergo a four-year Engineering course at INS *Shivaji/Valsura*.

(vi) University Entry Scheme (UES) : The UES has been relaunched w.e.f. August 2005 course, as a Short Service Commission Scheme. Final and Pre-Final year Engineering students are eligible for induction into the technical Branches/Cadres of the Navy.

(vii) Women Officers : Women are being inducted into the Navy, as Short Service Commission (SSC) officers in the Executive (ATC, Law & Logistic Cadres) and the Education Branch.

(viii) Recruitment through NCC: University graduates Possessing NCC 'C' certificate, with minimum 'B' grading and 50% marks in the graduation degree examination, are inducted in the Navy as regular commissioned officers. These graduates are exempted from appearing in the Combined Defence Services Examination (CDSE) and are selected through the Service Selection Board (SSB) interview only.

(ix) Special Naval Architecture Entry Scheme : An empowered Naval team visits IIT Kharagpur, IIT Chennai, Cochin University of Science and Technology (CUSAT) and Andhra University, where B Tech (Naval Architecture) course is conducted, to select the candidates through campus interviews. The selected candidates undergo medical examination at the nearest Military Hospital and, if found fit, are sent for training under this scheme.

Recruitment of Sailors : Recruitment of sailors in the Navy is also carried out through a process of a written examination, physical fitness test and medical examination. The various entries, for recruitment of sailors, are as follows :-

- (i) Artificer Apprentices (AAs)-10+2 (PCM).
- (ii) Direct Entry (Diploma Holders) [DE (DH)]-Diploma in Mechanical/Electrical/Electronics/Production/Aeronautical/Metallurgy/Shipbuilding.
- (iii) Metric Entry Recruits-Matriculation.
- (iv) Non-Matric Entry Recruits-Below Matric.
- (v) Direct Entry Petty Officer (Outstanding Sportsmen).

RECRUITMENT IN INDIAN AIR FORCE

Officers' Selection in Indian Air Force : UPSC entries for Indian Air Force are confined to Flying Branch Only. For Technical and Non-Technical branches, recruitment is carried out through various direct entries by Air Headquarters.

Aspiring Engineering Graduates, both Men and Women, undergo Engineering Knowledge Test (EKT) held at different Air Force Stations followed by selection tests at Air Force Selection Boards. On successful completion of 74 weeks training, they are inducted in Electronics and Mechanical streams. Final/pre-final year students in the specified Engineering disciplines are eligible for induction through University Entry Scheme (UES).

Post Graduate and Graduate candidates, both Men and Women, aspiring to join Non-Technical Branches undergo a Common Entrance Test (CET) held twice a year at various Air Force Stations followed by selection tests at Air Force Section Boards.

Selection of Airmen : The selection of suitable candidates for enrolment as Airmen is carried out through a centralized selection system on All India basis by Central Airmen Selection Board, located at New Delhi with the help of fourteen Selection Centres spread all over the country.

NATIONAL CADET CORPS

The National Cadet Corps (NCC) was established under the NCC Act, 1948. It has completed 60 years of existence. The NCC strives to provide the youth of the country opportunities for all round development with a sense of commitment, dedication, self-discipline and moral values, so that they become good leaders and useful citizens and can take their appropriate place in all walks of life in the service of the nation. The total sanctioned strength of NCC cadets is 13 lakh. The NCC's presence can be felt in 607 districts of the country covering 8514 schools and 5255 colleges.

Directorate General, NCC located at New Delhi controls and oversees various activities of the NCC through 16 NCC Directorates spread across the country. There is a Central Advisory Committee for the NCC to provide overall policy guidelines. NCC is manned by the service personnel, Whole Time Lady Officers, teachers/professors and civilians. One lecturer/teacher in each educational institution is appointed as Associate NCC officer.

TERRITORIAL ARMY

The Territorial Army is a voluntary, part-time citizen's Army. The conceptual framework for the Territorial Army is based on the fundamental idea that it should

exist for wartime employment, and should be maintainable at the lowest cost during peace time. The concept encompasses the employment of disciplined, dedicated and a low cost force of gainfully employed citizens from all walks of life to supplement and augment the resources of the regular Army. These citizens on joining the Territorial Army undergo a short period of rigorous training, which makes them reasonably competent soldiers. Subsequently, they join their units for two months every year for refresher training, to keep in touch with the art of soldiering.

Infantry Battalions (TA) have been embodied for operational services since the raising of the force. Units of the Territorial Army have participated in all wars alongside the regular Army. In recent times, a maximum of 22 units were embodied in Operation Rakshak, Operation Vijay and Operation Parakram. Infantry Battalions (TA) have also been embodied for counter insurgency operations in North-East and Jammu and Kashmir. They have been utilised to maintain essential services like railways, oil supply and medical (departmental units) during emergencies. Some units have been organised for national development tasks in fields like ecology and afforestation and they have rendered commendable services.

TRAINING INSTITUTIONS

A Large Number of training institutions in the Defence Sector work in coordination with one another. The important ones are described in the following paragraphs.

Sainik Schools : Sainik Schools were established as joint ventures of the Central and State Governments. These are under the overall governance of Sainik Schools Society. At present there are 22 Sainik Schools located all over India.

The objectives of Sainik Schools include bringing quality public school education within the reach of the common man, all-round development of a child's personality and to remove regional imbalance in the officers' cadre of the Armed Forces. The Sainik Schools prepare boys academically, physically and mentally to join Armed Forces through the National Defence Academy (NDA).

Rashtriya Military School : The five Military Schools in the country at Ajmer, Bangalore, Belgaum, Chail and Dholpur are affiliated to CBSE. The Military Schools admit boys in class VI, based on an all-India Entrance Examination. While 67 per cent seats are reserved for the wards of JCOs/ORs called 'entitled category', out of 33% non-entitled category seats, 20% are reserved for wards of service officers.

Rashtriya Indian Military College : The Rashtriya Indian Military College (RIMC), Dehradun was founded on 13 March 1922 with the objective of providing necessary preliminary training to boys of Indian birth or domicile, wishing to become officers in Indian Armed Forces of India. The RIMC is now a premier educational institution in the country. Selection for RIMC is through a written examination and interview conducted through the state government. The institution now serves as a feeder institute to the National Defence Academy, Khadakvasla (Pune).

National Defence Academy : The National Defence Academy (NDA), Khadakvasla is a premier Inter Service training institution where future officers of Armed Forces are trained. The training involves an exacting schedule of three years before the cadets join their respective Service Academies, viz, Indian Military Academy, Naval Academy and Air Force Academy.

Indian Military Academy : The Indian Military Academy (IMA), Dehradun transforms young men into courageous, dynamic and erudite young officers of integrity, who are

to bear the brunt of battle, or hardship whilst guarding the nation's frontiers. IMA established in 1932, imparts training to cadets for commission into the Army.

Officers Training Academy : Established in 1963, the Officers Training School (OTS) was re-designated as Officers Training Academy (OTA) from January 1, 1988 on completion of 25 years of its existence. Its main task before 1965 was to train Gentlemen Cadets for grant of Emergency Commission. From 1965 onwards, the Academy has started training cadets for Short Service Commission. With the entry of women officers into the Army since September 21, 1992, around 100 lady officers now get commissioned from OTA every year.

Defence Services Staff College : Defence Services Staff College (DSSC), Wellington is a premier tri-service training establishment imparting training to middle level officers (Majors and equivalent) of the three wings of Indian Armed Forces, friendly foreign countries and Indian Civil Services.

College of Defence Management : The Institute of Defence Management (IDM), Secunderabad was established in June 1970 to impart modern, scientific management training to the Armed Forces Officers. The IDM was renamed as College of Defence Management (CDM) in 1980. The College has trained over 5000 officers of the rank of Major to Major General and equivalents of the three Services through its on-campus programmes. It has also given exposure in defence management to a large number of officers through external capsules. Officers from Para-Military Forces, Ministry of Defence, research and development organisations and friendly foreign countries also attend various on-campus programmes.

College of Military Engineering : The College of Military Engineering (CME) at Pune is a premier technical institution. The training is conducted for personnel of the Corps of Engineers, other Arms and Services, Navy, Air Force, Para-Military Forces, Police and civilians. Besides, personnel from friendly foreign countries are also trained. CME is affiliated to Jawaharlal Nehru University (JNU) for the award of B. Tech and M. Tech degrees.

National Defence College : The National Defence College (NDC) inaugurated on 27 April 1960 is the only institution in the country that imparts knowledge on all aspects of national security and strategy. Senior Defence and Civil Services Officers participate in a 47-week comprehensive programme of national security and strategy.

PRODUCTION

The Department of Defence Production deals with the indigenisation, development and production of defence equipment both in public and private sectors. The Department has 8 Defence Public Sector Undertakings and 39 ordnance factories with a wide-ranging production infrastructure for aircraft and helicopters, warships, submarines, heavy vehicles and earth movers, missiles, a variety of electronic devices and components for the defence sector, and alloys and special purpose steel. Since Independence, the defence production sector has been developing steadily, with the objective of achieving self-reliance.

ORDNANCE FACTORIES

The Ordnance Factories Organisation is the largest and oldest departmentally run production organisation in the country and is primarily engaged in the manufacture of Defence hardware for the Armed Forces. The Ordnance Factories were established with a mandate to ensure self-reliance in manufacturing of Defence hardware for the

Armed Forces. The Ordnance Factories Organization is a fine blend of old and state-of-the-art factories. The first Ordnance Factory was established in 1801 at Cossipore, near Kolkata. There are 39 Ordnance Factories, geographically distributed all over the country at 24 different locations. Ordnance Factory, Nalanda and Ordnance Factory, Korwa are in project stage.

DEFENCE UNDERTAKINGS

The Hindustan Aeronautics Limited (HAL) was formed in October 1964 with its Corporate Office at Bangalore. The Company has 19 production divisions and 9 R&D Centres located in six States. It is the largest public sector undertaking under the Department of Defence Production. HAL's product range consists of aircrafts, helicopters, aero-engines, accessories and avionics. It has diversified into manufacture of structures for aerospace launch vehicles and satellites and industrial and marine gas turbine engines. HAL is a major partner for the space programmes of ISRO. It manufactures structures and assemblies for the launch vehicles and satellites.

Bharat Electronics Limited (BEL) is the leading professional electronics company in the country engaged in the design, development and manufacture of sophisticated state-of-the-art electronic equipment/components for the use of defence services, paramilitary organisations and other infrastructure providers in the telecom sector. BEL has been accorded "NAVRATNA" status company in 2007. Based on the MoU performance, the company has been rated in the "Excellent" category continuously for the last 8 years by the Department of Public Enterprises (DPE). With its 9 production units and 31 manufacturing divisions spread across 7 states, the company focuses on Research and Development to generate business using the 'state-of-the-art' manufacturing and testing facilities.

The Bharat Earth Movers Limited (BEML) was established in May 1964 and commenced operations from January 1965. BEML is the prime earth moving and construction equipment manufacturer in the country and also produces ground supporting equipment for Armed Forces for movement of men and material. The company also manufactures railway coaches and wagons for Indian Railways and defence forces. Recently, BEML has diversified its business by successfully assembling state-of-the-art stainless steel metro coaches for Delhi Metro Rail Corporation (DMRC) under technical collaboration with M/s Rotem of South Korea.

Garden Reach Shipbuilders and Engineers Limited (GRSE), was taken over by the Government of India on 1st April 1960. GRSE is among the leading shipyards in the country and the premium yard in the East. GRSE builds a wide range of ships ranging from sophisticated warships to ultra modern commercial vessels and from small harbour crafts to fast and powerful patrol vessels. India's first ever tanker fleet too was built at GRSE. The latest on the list is new generation hovercraft.

Goa Shipyard Limited (GSL), the youngest and smallest of the Defence shipyards, has the privilege of having implemented the first successful enterprises planning system amongst the Defence Public Sector Undertakings. The product range of the Shipyard comprises of 105m Advanced Offshore Patrol Vessels (AOPV), 105m Naval Offshore Patrol Vessels (NOPV), 90m Offshore Patrol Vessels (90m OPV), Offshore Patrol Vessels (OPV), 50m Fast Patrol Vessels (FPV), Missile Boats (MB), Survey Vessels (SV), Extra Fast Attack Crafts (XFAC), Sail Training Ship (STS), Landing Craft Utility (LCU), Seaward Defence Boats (SDB), Torpedo Recovery Vessels (TRV), Passenger Vessels (PV), Tugs etc.

The Bharat Dynamics Limited (BDL) was set up in 1970 for manufacture of guided missiles. It is amongst a few strategic industries in the public sector and possesses the capability to produce advanced Guided Missile Systems. Besides producing indigenously developed P-II missile systems, BDL is engaged in the production of Konkurs M and Invar (3UBK-20) missiles in collaboration with Russia. BDL is working in close association with DRDO for technology absorption/assimilation and extending support by providing missile sub systems/integrated missiles for conducting various trials of missiles like AKASH, NAG, Article K-15, AGNI VARIANTS (A1, A2 and A3).

Mishra Dhatu Nigam Limited (MIDHANI) was incorporated as a Public Sector Undertaking in 1973 to achieve self-reliance in areas of Super alloys, Titanium alloys and Special Purpose steels required for strategic sectors like Aeronautics, Space, Armaments, Atomic Energy and Navy. Special products like Molybdenum coins and plates, Titanium and Stainless Steel tubes, alloys for electrical and electronic applications like soft magnetic alloys controlled expansion alloys and Resistance alloys are also in the product range of MIDHANI.

DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION

Science drives the nation in peace and war. Impact of science in any country is manifold namely social, strategic and financial. The vision of DRDO is to empower India with cutting-edge defence technologies. It has the mission of achieving self-reliance in critical defence technologies and systems by indigenisation and innovation while equipping the armed forces with state-of-the-art weapon systems and equipment.

DRDO came into existence in 1958. It was the amalgamation of Technical Development Establishment (TDEs) of Indian Army and Directorate of Tech Dev and Production (DTDP) with Defence Science Organisation (DSO).

DRDO is headed by the Scientific Advisor to Raksha Mantri (SA to RM), who is also the Secretary, Deptt. of Defence R&D and Director General, R&D. The SA to RM is assisted by 7 Chief Controllers. The organisation has a two tier system, viz., the Technical and Corporate Directorates at DRDO Bhawan, New Delhi; and laboratories/establishments located at different stations all over the country. The following is the organisational structure of DRDO. Dr DS Kothari was the first SA to RM.

- Total No. of Labs/Estts - 52.
- Manpower Training Institutes - 3
- Integrated Test Range for performance evaluation - 2
- Total strength of DRDO - 30,000
- Total No. of Scientists - 7,000
- No. of technical personnel - 13,000
- No. of Admin and Support staff - 10,000.

The responsibilities of DRDO can be consolidated under the following categories:

- Design, development & lead to produce state-of-art Sensors, Weapon Systems, Platforms and allied equipment (Strategic systems, Tactical systems, Dual Use technologies).

- Research in Life Sciences, to optimise combat effectiveness and promote well-being of service personnel in harsh environment.
- Develop infrastructure and highly trained Manpower for strong defence technology base.

The value of orders executed/under execution to services by DRDO has been Rs 25,166 crore against R&D cost of Rs 5366 crore thereby generating a Return of Investment of approximately 5 times.

Some of the major contributions of DRDO have been the following :

S.No.	Systems	Systems Developed/Accepted/Introduced
1.	Missile System	Agni, Prithvi, Brahmos, Dhanush, Trishul, Akash & Nag
2.	Naval System	HUMSA, USHUS, TAL, Torpedoes-Fire Control System and Advanced Experimental
3.	Electronic Systems	SAFARI, ACCCS, Surveillance Radar, SAMUKTA, SANGRAHA, WLR, SV-2000, CIDSS, CNR and Indra
4.	Combat Vehicle and Eng.	MBT, Arjun, Armored, Engg Recce Vehicle (AERV) Bridge Layer Tank, Armoured Amphibious Dozer, SARVATRA, Trackway Expedient Mat Ground Surfacing, Armoured Ambulance BMP-II, Career Mortar Tracked on BMP-II, & Operation Theatre Complex on wheels
5.	Aero Systems	LCA, Lakshya Pilotless Aircraft, Nishant UAV "Tempest" EW Suite, Tranquil Radar Warning Receiver (RWR), Tarang RWR Project Vetrivale, High Accuracy Direction Finding (HADF) RWR, Jaguar Mission Computer & Bheema 1000 Aircraft Weapon Loading Trolley
6.	Armament Systems	5.56mm INSAS (Amn. LMG & Rifle), Pinaka-Multibarrel Rocket Launcher System, FSAPDS Mk-I/II Ammunition, Influence Mines Mk-I, Multimode Grenade etc.
7.	Materials	AB Class Steel for Naval Applications, Titanium Sponge, NBC Protective Clothing/Permeable Suites, Extreme cold weather Clothing systems, Blast Protection Suits, Synthetic Life Jacket, Anti Riot Polycarbonate Shield, Anti Riot Helmet, Brake pads for Aircrafts, Heavy alloy Armour Penetrator Rods, Jackal Armour, Kanchan Armour, Spade M1, Hydraulic Pipeline for Submarine Applications, Investment Casting of turbine components etc.
8.	Life Sciences Systems	Life Support Systems for Army, Navy and Airforce Personnel, NBC Canister, Water Prison Detection Kit, Portable Decontamination Apparatus, NBC Filters/Ventilation systems, First Aid Kit, CW Type A/B, Decontamination kit/ Solution.

However, the production value of the DRDO products is by no means the only measure of impact that it has made in its strategic systems development. These systems cannot be imported or developed jointly with any other country in the present era of embargo and technology denial. The other intangible benefits that DRDO offers are its capability in a broad range of militarily critical advanced technologies, efforts in ensuring continuity of supply of components, spares in face of changing international

scenario, developing a self reliant defence R&D base, spin-offs into civil industry and evaluation of imports of cutting edge technologies. The major partners in our nation building endeavors have been the 3 arms of the user services, defence PSUs, private industry, international collaborators and academic/researchers.

In addition DRDO has attracted young students to take up defence S&T as career option. The number of PhDs in DRDO under the DRDS category alone today exceeds 640. A good number of national and international patents, IPR, Copy-rights, Designs, Trademarks etc. as well as papers with impact factor are being published by our scientists. IT is a true 'knowledge bank' for the nation and owner of a vast intellectual property. DRDO offers to its employees adequate professional ambience in terms of flexibility of operation, autonomy, financial and managerial responsibilities. Advanced training, career and self development needs of the scientists are also given due attention. DRDO has also over its 50 years of existence contributed immensely in developing a sound academic and industrial base in the country.

The DRDO employees routinely perform duties that are unique in nature. Several projects in DRDO are mission mode and field oriented. In addition to carrying out field trials for several months at a stretch under harsh environments like deserts and high altitude cold areas, the DRDO scientists are also often posted at Hard Stations like Leh, Tezpur, etc. Further, the scientist is also expected to carry out extensive airborne and ship borne trials as part of their project responsibilities.

The Defence R&D expenditure of Rs. 6,104.54 crore during the FY 2007-08 was 6.66% of nation's total Defence expenditure of Rs. 91,680.28 crore. The Defence R&D Budget for the current (2008-09) FY is Rs 6,486 crore, being 6.14% of total Defence budget of Rs 1,05,600 crore. Over 47% of the budget is under the capital head. The priority activity of DRDO is in Strategic systems which takes over 35% of DRDO budget. The technologies, systems and various S&T products account for 30%, works/maintenance 12%, and salaries 12% of the DRDO budget.

RESETTLEMENT OF EX-SERVICEMEN

The Department of Ex-Servicemen Welfare formulates various policies for the welfare and resettlement of ESM in the country. The Department has two Divisions, Resettlement Division and Pension Division and is assisted by two Inter Services Organisations, i.e., Directorate General of Resettlement (DRG) and Kendriya Sainik Board (KSB). While the KSB, which is headed by Raksha Mantri as an ex-officio President of the Board, lays down general policies for the welfare of ESM and their dependents and also for administration of welfare funds, the Directorate General of Resettlement implements various policies/schemes/programmes of the Government.

The KSB and Directorate General of Resettlement are also assisted in their tasks by various Rajya Sainik Boards/Zila Sainik Boards which are under the administrative control of respective State governments. The Government of India bears 50 per cent of the expenditure incurred on the organisation of RSBs while the remaining 50 per cent expenditure is borne by the respective State governments, since the welfare and resettlement of ESM is the joint responsibility of the Central Government as well as the State governments.

The primary thrust of the Directorate General of Resettlement, Kendriya Sainik Board, Rajya Sainik Boards and Zila Sainik Boards is on dignified resettlement, and

efforts are made to explore various avenues for employment of ex-servicemen, armed forces personnel retire or are released from active service every year, most of them being in the comparatively younger age bracket of 35 to 45 years. These personnel need to be utilized for nation building. To resettle/reemploy ex-servicemen, the Central Government arranges the following : (a) Training programmes to reorient retiring Defence personnel towards civil employment, (b) Reservation of posts for providing employment opportunities in government/semi-government/public sector organisations and assistance in employment with corporate sector, (c) Schemes for self-employment, and (d) Assistance in entrepreneurship and setting up small-scale industries.

Officers Training : The Directorate General of Resettlement organises employment oriented training programmes for officers to enhance their qualifications and enable them to seek suitable employment after retirement. The Resettlement Training Programmes range from vocational courses of three months duration to degree/diploma courses, via distant learning programme, of one to three years duration.

Junior Commissioned Officers (JCOs)/Other Ranks (ORs) Equivalent Training: Resettlement Training Programmes for Junior Commissioned Officers/Other Ranks and their equivalent from other services are conducted in diversified fields for a duration of up to six months in government, semi-government and private institutes spread all over the country.

Ex-servicemen (ESM) Training : Under this scheme, funds are allotted to Rajya Sainik Boards for conducting vocational training for ESM in their States. The scheme is primarily meant for those ESM who could not avail the facility of resettlement training while in service.

Re-Employment of Ex-Servicemen : The Central and State governments provide a number of concessions to Ex-Servicemen for their re-employment in Central/State Government posts. These include reservation of posts/relaxation in age and educational qualifications, exemption from payment of application/examination fees, and priority in employment to the disabled ESM and dependents of deceased service personnel on compassionate grounds.

Reservation for Ex-Servicemen in Government Jobs : The Central Government has reserved 10 per cent of Group 'C' posts and 20 per cent of Group 'D' posts for ESM, while central PSUs and nationalised banks provide 14.5 per cent reservation in Group 'C' and 24.5 per cent in Group 'D' posts. 10 per cent posts of Assistant Commandants in paramilitary forces are also reserved for ESM. In Defence Security Corps, 100 per cent vacancies are reserved for ESM.

Employment in Security Agencies Registered by DGR : The DGR registers/sponsors security agencies for providing security guards to various PSUs and industries in private sector. The scheme offers good self-employment opportunities to retired officers and adequate employment opportunity to ex-PBORs in a field where they have sufficient expertise. The Department of Public Enterprises (DPE) had issued instructions to all PSUs to get security personnel through State Ex-Servicemen Corporations located in concerned State or DGR sponsored Security Agencies. The scheme has shown good results. Through the scheme about 1800 Ex-Servicemen security agencies have been empanelled and approximately 1,10,000 Ex-Servicemen have gained employment.

SCHEMES FOR SELF-EMPLOYMENT

Government has formulated several Self-employment ventures for rehabilitation and resettlement of Ex-servicemen and their families. The details of these schemes are given in the following paragraphs.

Allotment of Army Surplus Vehicles : Ex-Servicemen and widows of Defence personnel, who died while in service, are eligible to apply for allotment of Army Surplus Class V-B Vehicles.

Coal Transportation Scheme : This scheme is in existence for the last 27 years. In 2007, seven ESM Coal Companies were sponsored to the Coal India Limited against firm demand benefiting 371 ESM.

ENTREPRENEUR SCHEMES

The schemes in operation at present are SEMFEX-II and SEMFEX-III comprising of ventures in rural areas in agriculture, industry and service sectors. The lending institutions are Nationalised Banks, Cooperative Banks, Regional/Rural Banks etc. Subsidy of 25%-30% is available for these schemes. Application for loan is submitted by ex-servicemen directly to the Bank through concerned Zila Sainik Boards.

SEMFEX-II Scheme : The Scheme was started in 1988 with the assistance of National Bank for Agriculture and Rural Development (NABARD) for funding the entrepreneurship in agriculture, industry and service sectors in rural areas. Subsidy upto 25% of project cost is provided. Since inception, 7580 ex-Servicemen have been sanctioned loans amounting to Rs. 5706 lakh.

SEMFEX-III : The scheme was started in 1992 with the assistance of Khadi and Village Industries Commission (KVIC) for setting up of textile, village, cottage, tiny and small scale industries in rural areas. Loan up to Rs. 25 lakh and subsidy upto 30% is provided under the scheme.

PM Scholarship Scheme : The aim of PM Scholarship Scheme is to encourage the wards of widows and ex-servicemen to take up higher technical and professional education. A total number of 4000 scholarships are available for wards of widows/ex-servicemen. Rs. 18,000/- per annum to a girl student and Rs. 15,000/- to a boy student is provided for the entire duration of the course.