150 YEARS OF CELEBRATING THE MAHATMA

स्वच्छ भारत
एक कदम स्वच्छता की ओर

ANNUAL REPORT
2018-19

सत्यमेव जयते

MINISTRY OF DEFENCE
Government of India

T-90 (Bhisma) rolling in deserts

1. Anti-Satellite Missile (Mission Shakti)
2. Mortar in action
3. Mounted Gun Systems Showcased during DEFXPO 2018

Front Cover *(Clockwise)*

4. Mighty Destroyer braving the seas
5. C-130J Aircraft landing
6. Veterans (Ex-Servicemen)
7. National War Memorial near India Gate

Centre

8. Humanitarian Assistance and Disaster Relief

ANNUAL REPORT
2018-19

MINISTRY OF DEFENCE
Government of India

Contents

1.	Security Environment	1
2.	Organisation and functions of Ministry of Defence	9
3.	Indian Army	17
4.	Indian Navy	31
5.	Indian Air Force	41
6.	Indian Coast Guard	49
7.	Defence Production	57
8.	Defence Research and Development	91
9.	Inter Service Organisations	113
10.	Recruitment and Training	135
11.	Resettlement and Welfare of Ex-Servicemen	161
12.	Cooperation Between Armed Forces and Civil Authorities	177
13.	National Cadet Corps	187
14.	Defence Cooperation with Foreign Countries	197
15.	Ceremonial and Other Activities	205
16.	Activities of Vigilance Units	219
17.	Empowerment and Welfare of Women	229
18.	Initiatives Towards Simplification, Decentralization and Enhancing the Ease of doing Business	239

APPENDIX

Appendix-I	Matters Dealt with by the Departments of the Ministry of Defence	249
Appendix-II	Ministers, Chiefs of Staff and Secretaries Who were in position from January 1, 2018 onwards	253
Appendix-III	Report No. 8 of 2018 Executive Summary	255
Appendix-IV	Age-wise analysis of Pending Audit Paras	272

CHAPTER 1

SECURITY ENVIRONMENT

1 SECURITY ENVIRONMENT

1.1 It is increasingly evident that the world is undergoing rapid and unexpected changes, described by some as tectonic shifts. The world is in a transition, driven by rapidly evolving security and technological challenges, causing stresses in international order and transforming the global hierarchies. The need to craft an appropriate response, aimed at shaping an international environment conducive to India's development and security, is imperative.

1.2 India's foreign and defence policies seek to provide a peaceful and enabling environment for achieving transformative national growth and development. A complex and increasingly unpredictable interplay of regional and global developments characterize India's security environment. Guided by the principles of strategic autonomy and mutually beneficial cooperation, India continues to address the wide spectrum of conventional and non conventional security challenges by pursuing constructive engagement with partner countries at the bilateral, regional and global levels.

1.3 Terrorism and radicalisation are the biggest threats to peace and security that the world is facing today. India has reiterated, at a number of bilateral and multilateral platforms, its resolve to combat terrorism in all its forms and manifestations. The global concerns regarding proliferation of Weapons of Mass Destruction (WMD) and their delivery systems, continue to pose serious threats to international security. WMD terrorism will remain a potent threat as long as there are terrorists seeking to gain access to relevant materials and technologies for malicious purposes. India had contributed actively, with partners, to the success of Nuclear Security Summit (NSS) process and continues to engage with partners in the Nuclear Security Contact Group.

Regional Security Environment

1.4 The Government has continued to accord a high priority to relations with countries in Asia. In general, India's approach of seeking closer ties, building stronger connectivity and expanding cooperation has been appreciated by our partners in the larger neighbourhood.

1.5 India has been committed to the policy "neighbourhood first" aimed at expanding the close and friendly relations with India's neighbours. It continued with its policy during the year. India's defence and security policy is a function of its principled commitment to regional and international peace and prosperity.

1.6 The regional cooperation in the area of regional security has progressed significantly under BIMSTEC [Bay of Bengal Initiative for Multi Sectoral Technical and Economic Cooperation]. The 4th BIMSTEC Summit, held in Kathmandu on August 30-31, 2018, was instrumental in giving regional cooperation under BIMSTEC a significant push. The summit was attended by all BIMSTEC leaders. The Kathmandu Declaration, adopted at the Summit, provides vision and Leaders' directions for intensifying regional cooperation in key areas of security and counter terrorism, disaster management, connectivity and trade, agriculture and poverty alleviation, S&T, culture, tourism and people-to-people contacts, among others. The

4th BIMSTEC Summit also institutionalized Meeting of BIMSTEC Home Ministers which is likely to give further push to regional security cooperation. To promote cooperation and mutual understanding among the armed forces of member States, a BIMSTEC Multilateral Military Exercise on the theme of counter terrorism and a Conclave of Army Chiefs was organized in Pune from September 10-16, 2018.

1.7 India has been contributing to the regional maritime security by ensuring safety and security of maritime traffic through helping our maritime neighbours set up their coastal surveillance networks for developing shared Maritime Domain Awareness (MDA). In this context, India launched an Information Fusion Centre-Indian Ocean Region (IFC-IOR) in Gurugram in December, 2018. The IFC-IOR is a major initiative to put in place a mechanism for MDA and to ensure situational awareness of the maritime activities in the region. This Centre will establish linkages and coordination with national and multi-national organizations that are relevant to maritime safety and security. It will collate, analyse and disseminate information related to maritime safety and HADR requirements at sea. In furtherance of this goal, India has also signed White Shipping Agreements with a number of countries, provided capacity building assistance and ensured capability enhancement by imparting training.

1.8 In the immediate neighbourhood, the security environment remained challenging. Afghanistan is presently undergoing a phase of important multiple transitions. The Afghan National Security Forces have taken over the security responsibility and are facing a daunting challenge in fighting terrorism with reduced international combat support. Past year witnessed increased level of terrorist violence. The country is challenged by a revitalized Taliban led insurgency coupled with deterioration of the law and order situation. As a result, terrorism has been spreading to the relatively peaceful parts of Afghanistan. The international community is genuinely concerned about the deteriorating situation, as seen from the number of initiatives undertaken by world community. However, the efforts of international community towards peace and reconciliation efforts are yet to produce tangible results. India continues to play a role in training and supporting capacity building of the Afghan National Defence and Security Forces (ANDSF) as a part of larger developmental cooperation assistance. Last year, India trained an all women batch of 20 ANDSF officers in India. India has so far committed US $ 3 billion in assistance towards development in Afghanistan.

1.9 Bangladesh went in for elections in December, 2018 and Prime Minister Sheikh Hasina's Party was re-elected to power. Under her leadership, good relations between India and Bangladesh and deeper cooperation in all the fields of bilateral relations have expanded. The security scenario in Bangladesh remained stable. After the terrorist attacks in 2016, Government of Bangladesh has effectively curbed the activities of the radical groups. India and Bangladesh continued to undertake efforts to bolster the defence cooperation, which includes operationalising the USD500 million Defence LOC extended to Bangladesh by India. The institutional defence cooperation mechanism, such as of Annual Defence Dialogue and Staff Talks at Tri-Services and Services levels, is now in place to facilitate engagements between both the Armed Forces. India wishes to continue with its excellent relations with Bangladesh and strengthen defence and security cooperation with the country in future. India continues to attach priority to Bangladesh as a neighbour, a close partner for regional development, security and cooperation, and a central pillar in India's "Neighbourhood First" policy.

1.10 A new government under the leadership of Dr. Lotay Tshering of the Druk Nyamrup Tshogpa (DNT) party assumed office in November 2018, after the conduct of third general elections in Bhutan. Prime Minister Dr. Lotay Tshering visited India in December 2018 on his first official overseas visit, which is reflective of the unique relationship between India and Bhutan.

1.11 India's security concerns are closely linked with the neighbouring littoral nations in Indian Ocean Region (IOR) including Maldives. Engagement between the defence forces of both the nations has enhanced over the years. India continues to assist Maldives National Defence Forces in their capability and capacity building. Bilateral exercises between the Army (Ekuverin), Navy (Ekatha) and Coast Guard (Dosti) of the two countries take place on an annual basis. India has undertaken close to 200 search and rescue operations in Maldives and these lifesaving operations have been widely appreciated by the local populace.

1.12 Since formation of a new government under Prime Minister Shri KP Sharma Oli in Nepal in February, 2018, three reciprocal visits, at the Heads of Government level, have added a new vigour to India-Nepal bilateral relations. Prime Minister of Nepal, Shri K.P. Sharma Oli visited India in 2018 followed by a bilateral visit of Prime Minister Narendra Modi to Nepal in May 2018 and in August 2018 for BIMSTEC Summit. The major focus has been on the timely and expedited implementation of bilateral projects and initiatives. The 13th edition of India-Nepal Joint Military Exercise 'Surya Kiran' was held in Pithoragarh in May – June 2018.

1.13 The security cooperation between India and Myanmar has significantly improved and Indian defence agencies are working in close coordination with Myanmar Defence forces to address the problem of insurgent groups along the India-Myanmar border.

1.14 The political situation in Pakistan continues to remain challenging with a severe deficit of inclusive and balanced economic development. Pakistan army consolidated its position as the institution driving Pakistan's foreign security and defence policies after the elections. Pakistan also continues to relentlessly expand its military forces, especially nuclear and missile capabilities despite a financial crisis. The country has been torn by ethno-regional conflicts, with the zone of conflict expanding from tribal areas on Pakistan-Afghanistan border to hinterland. Religious extremism is also on the rise. The military has avoided taking action against jihadi and internationally proscribed terror outfits that target Pakistan's neighbours. Support to such group persists. Such outfits continued to be encouraged to infiltrate into India under the cover of massive cross-LOC and cross border firing in Jammu and Kashmir and other areas throughout the year, triggering an appropriate response by Indian Armed Forces. The Pulwama Terror attack, in February-2019, perpetrated by the Pakistan-based UN Designated Terror entity Jaish-e-Muhammad (JeM) confirmed yet again that India remains a persistent target of Pakistan's state sponsored cross border terrorism policy. India's response, amongst other measures, included a successful pre-emptive non-military anti-terror aerial strike on the largest training camp of JeM at Balakot in Pakistan. India's position is that Pakistan takes credible and irreversible steps to stop supporting terrorists and terror groups operating from territories under its control and dismantle the infrastructure operated by terrorist outfits to launch attacks against India. India will continue to take robust and decisive steps to ensure its national security.

1.15 India-Sri Lanka relations have improved significantly especially in the field of defence and security matters. The armies of India and Sri Lanka held their sixth annual 'Mitra Shakti' military exercise. Training of Sri Lankan security personnel continued during the year with visits by high level officials cementing defence ties further. Indian Army Chief visited Sri Lanka in March 2019 and held talks with top Lankan military leadership. Commander of the Sri Lanka Navy (SLN), along with a delegation visited Southern Naval Command (SNC) in end March 2019. India kept up its constructive diplomatic engagement with Sri Lanka.

1.16 Relations with China moved towards greater stability in the overall context of Closer Developmental Partnership. Following the informal summit between Prime Minister Narendra Modi and President Xi Jinping held in Wuhan in April 2018, there was improved and

sustained stability in the India-China border areas. The period also witnessed renewed momentum in defence and military to military exchanges between the two sides. The visit of State Councillor and Minister of National Defence of China to India in August 2018 and the meeting of the Defence Secretary- level Annual Defence and Security Dialogue in Beijing in November 2018 laid the ground for continued bilateral engagements and exchanges in the defence field. Both sides recognised that peace and tranquillity in the India-China border areas is an important pre-requisite to development of bilateral relations and agreed that progress in bilateral relations should be guided by the consensus reached between their leaders.

1.17 India has abiding interests in Indo-Pacific region, and its engagements with the countries and institutions in the region have been deepening. The country's new Indian Ocean policy was articulated by Prime Minister Narendra Modi during his visit to Mauritius in March 2015. The policy, encapsulated in SAGAR (meaning ocean) which stands for "Security and Growth for All in the Region", includes deepening economic and security cooperation with our friends in the region, especially our maritime neighbours and island states and favors collective action and cooperation for peace and security in India's maritime region. In the Indian Ocean Region, India's relationships with littoral States have grown stronger. To the east, the Malacca Strait and South China Sea connect India to the Pacific and to most of its major partners – ASEAN, Japan, Republic of Korea, China, Americas and the pacific countries. Trade within the region is growing rapidly. India intends to continue its active engagements with the countries of the region bilaterally as well as at regional and global fora and enhance its capacity building efforts. India's vision for the Indo-Pacific region was outlined by Prime Minister Narendra Modi during the Shangri La Dialogue on June 1, 2018. It stands for a free, open, inclusive Indo-Pacific region, which embraces all in a common pursuit of progress and prosperity. It includes all nations within this region as also others beyond who have a stake in it and ASEAN is central to this vision. A common rule based order for the region must equally apply to all individually as well as to the global commons. India has regularly participated in the ASEAN Regional Forum (ARF) events to promote maritime cooperation initiatives. India organized the 3rd EAS Conference on Maritime Security and Cooperation in Orissa on June 8-9, 2018. India is also a part of various other multilateral institutions which are actively deliberating maritime security issues in the region including ADMM Plus, Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ship in Asia (ReCAAP) and Expanded ASEAN Maritime Forum (EAMF). India and Africa are part of India-Pacific Continuum. The maritime element of our cooperation with countries of Africa, especially in the East & Southern African region, is expanding.

1.18 West Asia has always remained important for India. Our people to people connect with the region is enormous and can be gauged by the fact that it is home to nearly nine million Indians who remit about 60 percent (US$39 billion) of the total of approximately US$62 billion foreign remittances. Over half of our energy requirements are also met from this region. Apart from economic considerations, the region also assumes importance for India due to ongoing civil strife, sectarian conflicts and rise of Islamic fundamentalism. Indian nationals have not been attracted by the radical Islamic ideology but the proliferation of this radical ideology is a threat to our national security and stability. Involvement by a large number of foreign powers in the West Asian politics notwithstanding, India continues to engage with the established Governments of the region. Indian approach towards the conflicts in the region has been that only the dialogue among all the concerned parties will ensure lasting peace in the region. India was invited as 'Guest of Honor' at the 46th Session of Organization of Islamic Cooperation (OIC)'s Council of Foreign Ministers Meeting by the host UAE in March 2019.

1.19 India-Russia relations continue to be warm and the same has been reflected in regular meetings of the leaders of the two countries. India has longstanding and wide-ranging cooperation with Russia in the field of defence. Joint exercises between the two countries, both bilateral and multilateral, were conducted with increased scope and complexity. The scope of defence cooperation between the two countries has been further enhanced by the signing of the Agreement on establishing the Indo-Russian Inter governmental Commission on Military and Military Technical Cooperation. Russia is one of the most important suppliers of defence equipment to India. India-Russia military technical cooperation has evolved from a buyer-seller framework to one involving joint research, development and production of advanced defence technologies and systems.

1.20 Europe is facing internal and external Foreign Policy challenges. Europe is yet to find solutions to the major issues at hand like BREXIT. Indian engagement with some of the major European nations has picked up momentum.

1.21 Indo-US partnership is on a positive trajectory with India been designated 'Major Defence Partner' in NDAA-17 [National Defence Authorization Act] and has been upgraded to Strategic Authorisation Act-1 Status (STA-1) equating India at par with the closest allies of US. Important agreements have been signed in the form of LEMOA (Logistical Exchange Memorandum of Agreement) and COMCASA (Communication Compatibility and Security Agreement) indicative of Indo-US relationship becoming stronger and the improving mutual trust. Maritime cooperation, Joint Military Exercises and Mil-to-Mil exchanges are expanding. Defence trade is also on the increase. This is expected to grow further, with easing of U.S. export control laws and its willingness to offer more sophisticated military platforms to India. Both countries are also pursuing co-development and co-production initiatives. Cooperation in Defence Innovation is an another prospective area of engagement between the two countries.

1.22 Today most African countries are reaping the benefits of democratic polity. Transitions of power in many African countries have been democratic, smooth and peaceful. The continent recently witnessed democratic elections in Kenya, Zimbabwe, South Africa, and Madagascar, DRC, the Gambia and several other countries. The strengthening of democratic political institutions is bound to deliver socio-economic development benefits.

1.23 The African Union has become pro-active in resolving conflicts and stepping forward to lead regional initiatives to address long-running conflicts and humanitarian crises.

1.24 African countries have a large coastline. This underlines the potential for cooperation in the maritime domain. Indian Ocean is a common factor and the Red Sea which laps the countries of the region is a major shipping link for India for both security and commerce.

1.25 The significant percentage of India's trade, including oil, passes through the Gulf of Aden and the Indian Ocean. The safety and undeterred continuity of maritime trade through this route is a priority. India Navy ships have been escorting ships and have undertaken various initiatives to strengthen anti-piracy efforts.

1.26 Focus on maritime domain has become another significant feature of our policy. Among the Indian Ocean littoral countries (IOLC), 9 (nine) happen to be in Africa. Over one third of members of IORA belong to Africa. We are strengthening cooperation within the framework of IORA to undertake specific projects. We have formalized frameworks of Defence cooperation with South Africa, Kenya, Tanzania, Mauritius, Seychelles and Madagascar.

1.27 We have also been assisting some of these countries by deployment of Indian Armed Forces training teams. A tri-service training team has been deployed in Tanzania. An Indian Coast Guard team is

deployed in Mozambique. Uganda and Namibia also have Indian defence training teams. We are in the process of sending a Navy training team to Madagascar.

1.28 Countries on the Eastern coast of Africa and the island countries of the Indian Ocean are being appraised of the benefits of continuity between Africa and the dynamic economies of Asia through the oceanic link.

1.29 India is also a participant in capacity building, including training of sailors. We are conducting hydrographic surveys to improve navigability of coastal waters and provision of maritime equipment for Tanzania, Kenya and Mozambique. Agreements on White Shipping have been signed with Kenya and Nigeria.

1.30 Indian soldiers are deployed in almost all peacekeeping missions in Africa and have been working shoulder-to-shoulder with their African counterparts. India has also supported the Africa-led peacekeeping efforts, including through financial assistance to the AMISOM (AU Mission in Somalia) and African-led International Support Mission to Mali. Currently, our largest contingent of Indian peacekeepers is present in DRC.

1.31 We have undertaken a wide range of HADR operations and evacuation efforts to providing relief supplies to several African countries.

1.32 Indian Navy was the first responder in the evolving humanitarian crises in the aftermath of Cyclone IDAI that hit Mozambique on March 15, 2019. Under Operation Sahayata, 3 Indian ships, INS Sujata, ICGS Sarathi and INS Shardul undertook HADR (Humanitarian Assistance Disaster Relief) in coordination with local authorities. IN Helicopter Chetak took several sorties to facilitate aerial survey by Disaster management officials of Mozambique, for evacuation of people in coordination with local authorities and for dropping of food & water packets in cyclone affected areas. To sustain HADR operations, another ship INS MAGAR, suitably loaded with relief materials was also sent to Mozambique.

1.33 Mozambican Government expressed its gratitude for support and solidarity extended by the Government of India. The professionalism, human approach and proficiency of Indian naval crew received great appreciation from Government and the people of Mozambique as well as the international agencies including the UN staff involved in HADR operations in Mozambique.

1.34 Earlier IN ships provided relief material to Madagascar. Assistance is also being sent to Zimbabwe and Malawi, two other countries hit by the cyclone.

Internal Security Environment

1.35 The overall internal security environment in the country is under control due to the continuous and unrelenting efforts of the Central and State Governments. In our federal structure, the primary responsibility for 'Public Order' and 'Policing' rests with the State Governments. However, the Central Government is steadfastly assisting the States in dealing with problems such as terrorism, militancy, insurgency and extremism. The range of challenges to internal security in India, emanating from terrorism/insurgency, can be categorised into four broad theatres, namely (i) Terrorism in the hinterland, (ii) Cross border terrorism in Jammu & Kashmir (J&K), (iii) Insurgency in North East and (iv) Left Wing Extremism (LWE) in certain states.

1.36 As far as terror related cases in the hinterland is concerned, the overall situation is under control. No major terror attack took place in the hinterland of the country during the year 2017. In November 2018, a grenade attack took place in Adliwal Village, Amritsar which resulted in loss of 3 lives and injuries to 23 others. No major terror attack took place in the first quarter of 2019 in the hinterland.

1.37 State sponsored terrorism by Pakistan in J&K remains the foremost internal security challenge faced by the country. During the period from January 1, 2018 to March 31, 2019, our security forces were able to neutralize 305 militants. Several development initiatives like strengthening of infrastructure, education, health, high and security equipments for J&K Police, etc., under Prime Minister Development Package, 2015 have been taken in the State of J&K.

1.38 The overall security situation in the North Eastern (NE) States improved substantially since 2013. The year 2018 witnessed the lowest number of insurgency incidents and civilian deaths since 1997. Compared to 2017, insurgency incidents have registered a decline of 18% in the year 2018. Similarly, there was 25% reduction in number of civilians and security forces personnel deaths in 2018. In the first three months of 2019, security situation has further improved in the region with the decline in insurgency incidents, civilian casualties, Security Forces (SF) casualties and kidnapping/abduction cases. Compared to the peak of insurgency in the region in the last two decades since 1997, there has been phenomenal improvement in security situation in the region.

1.39 While there is almost no insurgency left in Tripura and Mizoram, there has been a marked improvement in security situation in other States of the region. Pursuant to policy of talks/negotiations, various insurgent outfits have entered into Suspension of Operation (SoO) agreements and some of them have signed Memorandum of Settlements (MoS) and dissolved themselves. As a result, a number of cadres of insurgent outfits have surrendered after laying down arms and joined the mainstream of society. Sustained counter-insurgency operations are continuing against the insurgent.

1.40 The declining trend of LWE violence which started in 2011, continued in 2018 as well. In the last five years, there has been an unprecedented improvement in LWE scenario across the country.

1.41 The improved security situation is a result of resolute implementation of the multi-pronged strategy encompassing security measures, development measures, ensuring rights and entitlements of local communities etc. Greater presence of security forces across LWE States and severe attribution on armed LWE cadres through arrests, surrenders, desertions and neutralization in operations have contributed to the reduction in violence. Several developmental initiatives have been taken specifically for development of LWE affected area including focused schemes for development of roads, setting up of mobile towers, skill development and financial inclusion etc. apart from the flagship schemes of Central Government in infrastructure, education, health, agriculture etc.

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CHAPTER **2**

ORGANISATION AND FUNCTIONS OF MINISTRY OF DEFENCE

2 ORGANISATION AND FUNCTIONS OF THE MINISTRY OF DEFENCE

ORGANISATIONAL SET-UP AND FUNCTIONS

2.1 After Independence, Ministry of Defence was created under the charge of a Cabinet Minister and each Service was placed under its own Commander-in-Chief. In 1955, the Commanders-in-Chief were renamed as the Chief of the Army Staff, the Chief of the Naval Staff and the Chief of the Air Staff. In November 1962, the Department of Defence Production was set up to deal with research, development and production of defence equipment. In November, 1965, the Department of Defence Supplies was created for planning and execution of schemes for import substitution of defence requirements. These two Departments were later merged to form the Department of Defence Production and Supplies. In 2004, the name of Department of Defence Production and Supplies was changed to Department of Defence Production. In 1980, the Department of Defence Research and Development was created. In 2004, the Department of Ex-Servicemen Welfare was setup.

2.2 The Defence Secretary functions as head of the Department of Defence and is additionally responsible for co-ordinating the activities of the four Departments in the Ministry.

THE MINISTRY AND ITS DEPARTMENTS

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

2.4 The principal functions of the Departments are as follows:

(i) The Department of Defence deals with the 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 co-ordination of all defence related 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. 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 required by the Services.

(iv) The Department of Ex-Servicemen Welfare is headed by a Secretary and deals with all

resettlement, welfare and pensionary matters of Ex-Servicemen.

2.5 A list of subjects dealt with by various Departments and Finance Division of the Ministry of Defence is given in ***Appendix-I*** to this report.

2.6 Information regarding the Ministers in the Ministry of Defence, the Chiefs of Staff, the Secretaries in the Departments of the Ministry and the Secretary (Defence Finance)/Financial Advisor (Defence Services) who held positions during the period of this report is given in ***Appendix-II*** to this report.

HEADQUARTERS INTEGRATED DEFENCE STAFF (HQ IDS)

2.7 HQ IDS was raised on October 1, 2001 based on the recommendations of Group of Ministers (GoM) on the Kargil Review Committee (KRC) report. The HQ was raised under the command & control of Chairman Chiefs of Staff Committee (COSC) to foster jointness and synergy amongst the three Services. Since its inception, this HQ has achieved considerable milestones in joint and integrated planning, coordination of intelligence, joint conduct of Humanitarian Assistance and Disaster Relief (HADR) Operations and prioritising/streamlining procurements. Salient achievements of HQ IDS, during the ensuing year are enunciated in succeeding paragraphs.

2.8 ***Unified Commanders' Conference – 2018:*** HQ IDS conducted the Unified Commanders' Conference (UCC) at New Delhi on July 30 & 31, 2018. The conference provided a platform for discussions at the apex level on all 'Joint' issues amongst the three Services. The conference was attended by the Raksha Mantri, National Security Advisor, Service Chiefs and other Senior military and civil officials of the Ministry of Defence and Tri-Services Organisations/ Institutions.

2.9 ***Combined Commanders' Conference – 2018:*** HQ IDS conducted the Combined Commanders' Conference - 2018 on September 28, 2018 at Air Force Station, Jodhpur. The Conference was aimed to provide a platform for exchange of ideas at the apex level with a view to taking stock of the activities of the past year and to formulate a way ahead for the future. Participation of Commander-in-Chiefs of the three Services ensured feedback from the field formations to the highest decision making body thereby facilitating formulation of a way ahead in a comprehensive manner. Under the Chairmanship of the Prime Minister, the conference was attended by the Raksha Mantri, Raksha Rajya Mantri, National Security Advisor, Defence Secretary and Financial Advisor (Defence Services) from the Ministry in addition to the three Service Chiefs, Chief of Integrated Staff to Chairman COSC (CISC), Vice Chiefs and all Commander-in-Chiefs (C-in-Cs).

2.10 ***Turnover of Chief of Integrated Staff to Chairman COSC (CISC):*** Lt Gen PS Rajeshwar, AVSM, VSM took over as CISC on November 1, 2018. The officer was Director General Perspective Planning, IHQ of MoD (Army) prior to his present assignment. As CISC, he is coordinating various important Tri-Services Operational, Training, Planning & Administrative issues.

2.11 ***New Raisings:*** Three new agencies viz Armed Forces Special Operations Division, Defence Cyber Agency and Defence Space Agency are being raised under Headquarters Integrated Defence Staff with the issuance of Government Sanction Letters from the Ministry of Defence. The new agencies with its mandate and charters are designed to further embolden the idea of jointness and integration amongst the three Services achieving common national goal.

2.12. ***Joint Special Forces Training Camp:*** Joint Special Forces Training Camp is conducted annually under the aegis of Headquarters Integrated Defence Staff with a view to furthering integration between the Services in the field of Special Operations. This year the camp was conducted in March 2018 at Bagdogra.

2.13 ***Inauguration of National War Memorial:*** National War Memorial at 'C' Hexagon of India Gate was inaugurated and dedicated to the Armed Forces on February 25, 2019 by Prime Minister to commemorate the valour, sacrifice and selfless service of the Indian Armed Forces. The entire project was steered by HQ IDS.

Armed Forces Veterans' Day

2.14 ***Armed Forces Veterans' Day:*** The 3rd Armed Forces Veterans' Day was held on January 14, 2019 as a mark of respect and commitment towards our Veterans. It was celebrated at Delhi, Shillong, Patiala, Bikaner, Alwar, Kota, Dehradun, Meerut, Mumbai, Port Blair, Guwahati, Nagpur, Trivandrum and all major stations. The Armed Forces Veterans' Day is an outreach programme to interact with Veterans and to apprise them of the measures taken by the Services HQ and Ministry of Defence on matters concerning their pension and welfare on the occasion. Chief of Integrated Staff to Chairman COSC alongwith one senior officer from each Service also laid a wreath at Amar Jawan Jyoti, along with Veterans of the three Services.

Humanitarian Assistance and Disaster Relief (HADR) Activities

2.15 ***Kerala Floods:*** Kerala state received incessant rainfall for a period of two weeks from August 7, 2018 onwards. The heavy rainfall created unprecedented flood situation (worst in last 100 years), affecting 13 districts in the state. The gates of 35 dams in the state had to be opened, exacerbating the floods situation in Central Kerala. Idukki, Kochi, Ernakulam and Pathanamthitta were the worst affected districts. INCP was activated during the crisis period. HQ IDS acted as Point of Contact for coordination of rescue/relief effort on behalf of Armed Forces.

2.16 ***Op SAMUDRA MAITRI (Indonesia floods):*** Sulawesi province in Indonesia was hit by an earthquake and Tsunami on September 28, 2018. Palu in Central Sulawesi was most severely affected by the twin tragedy. On October 1, 2018, decision was taken to extend humanitarian aid to Indonesia.

ARMED FORCES TRIBUNAL (AFT)

2.17 The Government has established Armed Forces Tribunal (AFT) for the adjudication of complaints and

dispute regarding service matters and appeals arising out of verdicts of the Court Martial of the Members of the three Services (Army, Navy and Air Force) to provide speedy justice to the members of the Armed Forces.

2.18 At present Armed Forces Tribunals have been functioning at Delhi (Principal Bench) and at Regional Benches at Chennai, Jaipur, Lucknow, Chandigarh, Kolkata, Kochi, Guwahati, Mumbai, Jabalpur and Srinagar are functional.

BORDER ROADS ORGANISATION (BRO)

2.19 Border Roads Organisation (BRO) is a road construction organization to meet the requirements of the Armed Forces. Starting operations in May 1960 with two projects, it has now grown to 18 projects. Nine BRO projects are located in North West India (4 in J&K, 2 in Himachal Pradesh, 2 in Uttarakhand and 1 in Rajasthan), 8 BRO projects are located in North Eastern India (1 in Sikkim, 4 in Arunachal Pradesh, 1 in Nagaland, 1 in Mizoram and 1 in Tripura) and 1 in Bhutan.

2.20 BRO has earned a reputation of being the only road construction agency to construct and maintain roads in difficult, isolated and inhospitable terrain in inclement weather conditions. BRO has constructed approximately 53600 km of roads, 633 major permanent bridges of 57600 meter length and 19 Airfields. At present, BRO is undertaking construction/up-gration work of 19415 km roads and maintaining 7992 km roads, seven airfields besides snow clearance of 4219 km roads to ensure connectivity of border regions with rest of the country.

2.21 ***Major achievement by BRO***

(a) ***Completion of Theng Tunnel:*** To negotiate frequent land slides at km 86 km on road Gangtok-Chungthang, a Horse Shoe shaped tunnel of NHDL specification having length 578 meter has been completed. This tunnel has been dedicated to nation by by Raksha Rajya Mantri on June 7, 2018.

(b) ***Se La Tunnel:*** Prime Minister has laid the foundation stone of Se La Tunnel on February 9, 2019 and construction work through EPC contract has been awarded.

(c) ***Akhnoor – Poonch Road:*** The Akhnoor – Poonch Road is planned to be upgraded to National Highway Double lane (NHDL) specs with paved shoulders. The proposed upgradation also includes four tunnels and bypass that will ensure all weather connectivity and result in a reduction of about 34 km in the overall distance. Foundation stone for this up-gradation works was laid by the Prime Minister on February 3, 2019.

(d) ***Rohtang Tunnel:*** After breakthrough of Rohtang Tunnel in Himachal Pradesh was achieved, the concrete lining works have been progressed at an accelerated pace. Civil works are expected to be completed by third quarter of Financial Year 2019-20.

(e) ***Completion of ICBRs:*** Government has identified 3812 km roads for development along Indo-China border. Out of this, road for 3418 km have been entrusted to BRO, overall completed length 2300 km and connected length 3205 km.

(f) ***Highest Motorable Road in Ladakh:*** Project Himank has constructed the World's highest motorable road in Ladakh region of Jammu and Kashmir, passing Umingla Top at an altitude of 19300 feet. This strategically important road of length 86 km, connects border villages (China border) Chismle and Demchok to the mainland of Leh and will play important role in safe

movement of troop to Indo-China border.

(g) ***Adoption of EPC mode in BRO:*** Adoption of Engineering Procurement Contract (EPC) mode of execution has been approved by Ministry of Defence on August 29, 2017. Accordingly, all works costing more than ₹ 100 crore has been planned to execute through EPC mode.

At present, 40 numbers of works have been planned to be outsourced through EPC mode. As on date 33 contracts for preparation of DPRs have been accepted and 7 cases are in tendering process. The following civil works have been awarded through EPC mode:

(i) ***Chardham Yatra Projects:*** Contract for construction of 83.215 km on Chardham Yatra Projects on Road Rishikesh-Joshimath-Mana, Rishikesh-Dharasu and Dharasu-Gangotri Roads in Uttarakhand for ₹ 724.19 crore has been awarded to various firms.

(ii) ***Se La Tunnel:*** Contract for construction of two tunnels of length 0.475 km and 1.79 km at Sela Pass along with the approach Roads of length 9.775 km on Balipara-Charduar-Tawang Road in Arunachal Pradesh for ₹ 647.22 crore has been concluded on February 15, 2019.

(iii) ***Up-gradation:*** Contract for construction Road Balipara-Charduar-Tawang stretch between km 70 km to 88 km in Arunachal Prades from CI-9 to NHDL specifications for ₹ 170 crore has been concluded.

DEFENCE (FINANCE)

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

2.23 The Ministry of Defence enjoys enhanced delegated financial powers to facilitate quicker decision making. These powers are exercised with the concurrence of the Finance Division. With a view to ensuring transparency in exercise of these powers in respect of defence procurement matters and compliance with the laid down policy guidelines, the Defence Procurement Procedure (DPP) and Defence Procurement Manual (DPM) are updated from time to time.

2.24 Finance Division prepares and monitors Defence Services Estimates, Civil Estimates of the Ministry of Defence and the Estimates in respect of Defence Pensions (Table 2.1). Break-up of the actual expenditure for the years 2017-18, as also the Revised Estimates for 2018-19 and Budget Estimates for 2019-20 in respect of the four grants of this ministry and Defence Services Estimates are given in **Table No. 2.1** and **Table No. 2.2** respectively, and the relevant graph/chart at the end of this Chapter.

2.25 Summary of latest report of the Comptroller & Auditor General (C&AG) of India on the working of the Ministry of Defence is given in ***Appendix-III*** to this Annual Report.

2.26 The position of Action Taken Notes (ATNs) as on March 31, 2019 in respect of observations made in the C&AG Report is given as ***Appendix-IV*** to this Annual Report.

TABLE No. 2.1

Grant-wise Break-up of Defence Expenditure

(₹ in crore)

Details of Grant	2017-18 Actuals	2018-19 RE	2019-20 BE
Grant No 19 MoD (Misc.)	15144.57	16318.49	17065.12
Grant No 20 Defence Services (Revenue)	182121.42	188118.10	198485.76
Grant No 21 Capital Outlay on Defence Services	90438.39	93982.13	103380.34
Grant No 22 Defence Pensions	91999.58	106775.14	112079.57
Grand Total	***379703.96***	***405193.86***	***431010.79***

TABLE No. 2.2

Service/Department-wise Break-up of Defence Services Estimates

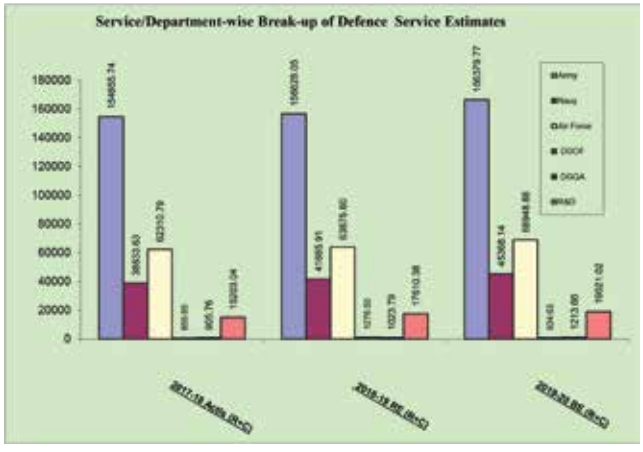
(₹ in crore)

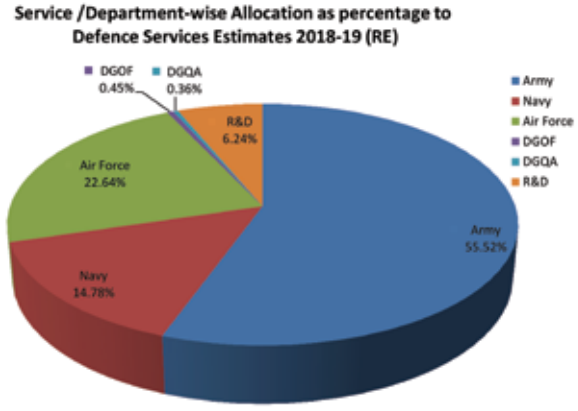
Service/Department	2017-18 Actuals (Rev.+Cap)	2018-19 RE (Rev.+Cap)	2019-20 BE (Rev.+Cap)
Army	154655.74	156628.05	166379.77
Navy	38833.63	41685.91	45368.14
Air Force	62310.79	63875.60	68948.88
DGOF	650.85	1276.50	934.63
DGQA	905.76	1023.79	1213.66
R&D	15203.04	17610.38	19021.02
Total	***272559.81***	***282100.23***	***301866.10***

DGOF - Directorate General of Ordnance Factories

DGQA - Directorate General of Quality Assurance

R&D - Research & Development





CHAPTER 3

INDIAN ARMY

3 INDIAN ARMY

3.1 The changing global geo-political dynamics presents the Nation with multiple security challenges. While constantly reviewing its operational preparedness/ postures to meet the perceived security challenges, the Indian Army (IA) is committed to the defence of the country from external and internal threats across the entire spectrum of warfare. Also, in times of disaster/ natural calamities, the Indian Army is in the forefront, providing aid and succour to the affected people.

JAMMU AND KASHMIR

3.2 The situation in J&K has remained volatile. Our deployment along the Line of Control (LC) and hinterland along with accretional forces has facilitated the Security Forces to maintain momentum of operations against terrorists. In the hinterland, the districts of Pulwama, Shopian, Anantnag and Kulgam remained the hub of terror related activities. Along the LC, areas South of Pir Panjal Ranges remained violent due to frequent Ceasefire Violations while the infiltration attempts from North of Pir Panjal Ranges have continued as hither to fore.

3.3 ***Ceasefire Violations (CFV):*** The ceasefire along the Actual Ground Position Line (AGPL), LC and International Border (IB) Sectors in J&K was generally held. In the year 2016 post Uri terrorist attack (September 18, 2016), the tempo of CFVs increased considerably and has remained constant this year too. There were 228 CFVs along the LC in 2016, 860 CFVs in 2017 and 1629 CFVs in 2018. Appropriate and effective retaliation, wherever required, was carried out to the CFVs initiated by Pakistan. The incidents of CFVs are taken up through the established mechanisms of hotlines, flag meetings and Directorate General of Military Operation talks between both countries.

3.4 ***Infiltration:*** Active training and aiding of terrorists continue from across the border to infiltrate through the LC. The efficacy of own Counter Infiltration grid has resulted in heavy attrition on infiltrating terrorists and lowering of successful infiltration across the LC. In 2018, Army eliminated 15 infiltration bids resulting in 35 terrorists killed. In 2017, the Army had eliminated 33 infiltration bids resulting in 59 terrorist killed.

Situation in Hinterland

3.5 Security Forces achieved remarkable success in the year 2018. Operations were conducted in excellent synergy with J&K Police and CRPF. Terrorist leadership and Over-Ground Workers (OGWs) were targeted in efficacy. 254 terrorists have been eliminated by the Security Forces in 2018 in J&K.

3.6 Suspension of Offensive Operation (SoOO) declared by the Government with effect from May 17 to June 16, 2018 provided an opportunity to the populace for peaceful celebration of the holy month of Ramzan. The terrorists, however, disregarded the initiative and used the opportunity to coerce the population, neutralize sympathizers of security forces, strengthen their network and increase terror incidents.

3.7 Tempo was, however, restored after the resumption of operations. Significant dent has been made to the terrorist organisations by inflicting heavy

attrition and eliminating its leadership. Attempts of the terrorist groups to revive militancy in North Kashmir was thwarted by maintaining sustained pressure. As a result the recruitment was largely restricted to the districts of South Kashmir.

3.8 Terrorists on their part tried to maintain higher levels of violence. As compared to 131 Terrorist Initiated Incidents (TIIs) in 2017, 318 were reported in 2018. This was done with a view to expanding their writ in the society by terrorizing the population and subverting Government institutions. SPOs, SF personnel on leave and innocent civilians including women were brutally killed. The incidents, however, were largely restricted to South Kashmir and by the end of the year, due to sustained pressure, recruitment declined. Attempts of Tanzeems to boost their number also received setbacks as 71% of terrorists was eliminated within months of picking up arms. As a result, due to sustained pressure, the local recruitment which had seen a spurt in activity during SoOO, declined by year end.

3.9 Overall security situation remained under control. Amarnath Yatra, Urban Local Bodies and Panchayat elections were conducted without any security related incidents.

Situation Along the Line of Control (LC)

3.10 ***Cease Fire Violations (CFVs):*** Sustained pressure was maintained on the LC and violations by Pak Army were appropriately retaliated. Pak Army sought DGMO talks on May 29, 2018 during which implementation of Ceasefire Understanding of 2003 was proposed. The proposal was accepted by our DGMO. During talks held on June 13, 2018, our concerns including infiltration of terrorists from Pakistan were conveyed.

3.11 Pakistan also sought a Brigade Commanders Level Flag Meeting on June 20, 2018. During the Flag meeting, our concerns of infiltration was reiterated and measures to ensure controlled movement of civilians close to the LC were proposed.

3.12 The CFVs reduced post DGMOs talk. CFVs, however, increased in the run up to the Surgical Strike Anniversary celebrations. The CFVs in September, October and November have been largely reported in Poonch and Naushera Sector in South of Pir Panjal Range. Caliber escalation reduced significantly post the May 29, 2018 talks.

3.13 Probing attempts continued from across and standoff firing on our posts occurred in regular intervals. A befitting retaliation was done to Pak in Sunderbani Sector on November 12, 2018. In response, Pakistan sought DGMO talks on November 15, 2018 and Brigade Commander Level Flag Meeting on November 23, 2018. Our commitment to maintain peace along the LC was conveyed to Pak. At the same time, it was emphasized that infringement of our Red Lines would invite massive punitive retaliation.

3.14 The Army has assiduously combated terrorism in the State through people friendly operations based on precise intelligence to break their nexus, with a larger aim of helping the civil administration in establishing its writ and bring about peace and stability in Jammu and Kashmir. The endeavor would be to further strengthen the counter infiltration grid and maintain sustained pressure on Pakistan Army along the Line of Control by well calibrated punitive retaliation to any act of misadventure.

Human Rights in J&K

3.15 Indian Army continues to maintain its stellar Human Rights record in J&K and assiduously investigates cases of alleged violations received from National Human Rights Commission. In 2018, Indian Army received 15 allegations from NHRC of which six investigations have been completed and all of them have been found false. Balance allegations are currently under investigation.

3.16 Pakistan, with renewed vigour in 2018, orchestrated an international campaign on Kashmir through its sponsored proxies by trying to project law & order maintenance actions as trumped up human rights cases of excess use of force. Pakistan's effort to portray Kashmir issue has received a fillip, following the publication of two international reports by the Office of the United Nations Human Rights Commission and the British Parliaments 'All Party Coordination Committee'. Indian Army is proactively engaging with MEA and MHA to counter propaganda both at international and national fora.

NORTH EAST

3.17 The security situation in the North Eastern States has improved on all parameters with only sporadic incidents of violence over the year. Inputs reveal that insurgent groups are facing acute administration and financial crunch due to relentless operations by Security Forces and have been forced to form umbrella organisation to maintain their capability for orchestrating violent activities. Concurrently, the tribal and ethnic divide, fuelled by the issue of illegal immigrants, has gained momentum and is likely to have a pan North East impact. Proactive operations by Security Forces continued and in 2018, 620 terrorists were neutralized (Killed - 16 and Apprehended - 604) along with recovery of 619 weapons.

3.18 ***Assam:*** The security situation in the State remained largely peaceful and under control. Calibrated, synergised and coordinated operations by security forces significantly reduced the operational space of insurgent groups. NDFB (S) and ULFA (I) have been marginalised leading to demoralisation and disenchantment amongst its cadres. Insurgent groups are facing acute financial crunch and have resorted to extortion and sporadic acts of violence to prove their relevance. National Citizen Register (NRC) update and Amendment to Citizenship Bill remain challenging issues and are likely to adversely impact law and order situation in the State.

3.19 ***Nagaland:*** Security situation in the State has improved considerably since 2015. State elections were held peacefully in February 2018 and resulted in a record turnout. In September 2017, the Naga Peace Process reached an important juncture with the signing of Framework Agreement with the NNPGs (conglomerate of six Naga insurgent groups). Talks between the Government and the Naga groups are underway to ensure early finalization of the peace process.

3.20 The impeachment of Khango Konyak from NSCN (K) resulted in a split in the group based on Indian and Myanmar Nagas. The Khango Konyak led faction has shown inclination of joining the peace talks and the ceasefire agreement. The developments have ensured that the Naga Peace Talks have become more inclusive and are progressing towards the solution for achieving lasting peace in the State.

3.21 ***Manipur:*** Security situation in the State continues to remain fragile and it remains the most disturbed State in the North East region. Majority of the violence has been perpetrated by valley based groups as they accounted for approximately 60% of the violence in Manipur. Inter-tribal rivalry and insider - outsider divide were prominently visible during 2018.

3.22 With the passing of Manipur People's Protection Bill by Manipur Assembly, there are increased demands for implementation of Inner Line Permit in the State. Politics of Blockades and Bandhs continued to prevail and led to increasing fissures amongst the three major communities namely Meiteis - Nagas - Kukis. There is also increased activity of Civil Society Organisations seeking clarification on the content of the Frame Work Agreement and who have been voicing concerns over maintaining territorial integrity of Manipur in light of the NSCN (IM)'s claim for Nagalim.

3.23 ***Arunachal Pradesh:*** Security situation in Arunachal Pradesh has been gradually improving in terms of reduction in violent incidents, lower civilian

casualties and increasing number of apprehension of terrorists. Synergised operations by Special Forces have reduced the operational space of insurgents. Apart from the complete districts of Longding, Tirap and Changlang, areas falling under the jurisdiction of eight Police Stations along the Assam border have been declared as 'Disturbed Area' for six months beyond September 30, 2018. Earlier, areas under 11 Police Stations were declared as 'Disturbed Area'.

3.24 Longding, Tirap and Changlang districts of the State are affected by the presence of various Naga insurgent groups which continue with their revival attempts. Since the area shares its borders with Assam and Myanmar it is frequented by cadres of NDFB(S) and ULFA (I) for shelter/transit. There are attempts by joint groups under United National Liberation Front of West South East Asia (UNLFWSEA) to showcase their relevance in these areas.

3.25 ***Meghalaya:*** The State continues to remain peaceful with dwindling support base for Garo National Liberation Army (GNLA). The violence perpetrated by the GNLA remained largely confined to Garo hills. Spillover of the activities of terrorist groups was also visible in neighbouring districts of Goalpara and Dhubri in Assam. The State Assembly elections were conducted peacefully in February 2018.

3.26 ***Mizoram:*** The State continued to remain peaceful. However, there were increase in attempts by insurgent groups to smuggle arms and narcotics. Due to the ongoing counter insurgency operations by Myanmar Army against Myanmar Ethnic Armed Groups (EAG) along the tri-junction of India, Myanmar and Bangladesh, a spill-over of EAG activities and influx of Myanmar population fearing violence by EAGs were observed in South Mizoram. Proactive measures are thus being taken to establish a coordinated intelligence grid and undertake effective border management to preclude any deterioration of situation on our side of India Myanmar Border.

3.27 ***Tripura:*** The State has remained comparatively peaceful and violence was within the threshold of law and order domain. The year 2018 witnessed reduced levels of violence which reflect the efforts of the Security Forces to ensure transition of security environment from volatility to peace and tranquility. The region is at the cusp of major changes and large infrastructure and communication projects are on the anvil as part of 'Act East Policy'. The ongoing NRC update and Naga Peace Accord is likely to have a pan regional impact and situation needs to be proactively monitored in the coming months.

3.28 ***Left Wing Extremism (LWE):*** Anti LWE operations are being conducted by State Governments and MHA. Army is involved only in advisory capacity and is providing training to the State Police/ CAPFs including training for Counter Improvised Explosive Devices Operations. Nominated young officers from CAPF units are attached with Army battalions deployed in J&K and in the North East Region with the aim of grooming them for leading their sub units in Anti LWE operations & by giving them 'operational exposure' and 'hands on training'.

Situation Along the India-China Border

3.29 The situation along the India-China border has remained peaceful. There are few areas along the border where there are differing perceptions of the LAC. Both sides patrol upto their respective perceptions of LAC. Specific cases of transgression by Chinese patrols into such areas are taken up with Chinese Authorities through the established mechanism of Hotlines, Border Personnel and Flag Meetings.

3.30 Compared to last year, the number of transgressions this year have considerably reduced. Concomitantly, the percentage of Face Offs/ Aggressive Interactions during these transgressions has also reduced this year. Post the Wuhan Summits, there has been an increase in the numbers of Flag Meetings. This

may be attributed to intent to resolve outstanding issues through discussion at various levels.

3.31 Standoff at CNN Junction, Eastern Ladakh due to our construction of a benign track and the constant raising of the construction of our Temporary Operating Base at Andrathang, Arunachal Pradesh were the only instances where there was major difference of opinion between the two sides. A few Confidence Building Measures (CBMs) which had been proposed by both sides for consideration have been implemented in sensitive areas of Arunachal Pradesh thereby easing the tension to some extent. Some additional CBMs are under consideration by both sides.

3.32 ***Situation in Doklam Plateau:*** Post the disengagement on August 28, 2017, after the 72 days standoff at Doklam, troops of both sides have redeployed themselves away from their respective positions near the face off site. The strength of either side has, however, reduced. The Indian Army is continuously monitoring Chinese activities in the area and is adequately prepared to respond to any contingency.

3.33 ***Defence Minister Level Interaction:*** Defence Minister of China visited India from August 21 to 23, 2018 and interacted with the Raksha Mantri in New Delhi. It is pertinent to note that the previous such incoming visit by the Chinese Defence Minister was in September 2012. Raksha Mantri also visited Beijing as part of the SCO Defence Ministers' Conclave where a bilateral meeting with the Chinese counterpart was held.

3.34 ***Annual Defence and Security Dialogue:*** The Defence Secretary led an MoD delegation to China to attend the 9th India-China Annual Defence and Security Dialogue (ADSD), held from November 12 to 15, 2018. Both sides held wide ranging and substantive discussion in a positive and friendly atmosphere. Inter alia, the proposal for establishment of Hotlines between respective Military Headquarters as well as corresponding military formations was also discussed.

DEFENCE COOPERATION WITH FRIENDLY FOREIGN COUNTRIES

3.35 Defence Cooperation activities constitute an important tool for furtherance of our national interests and foreign policy objectives. In keeping with India's rising global stature in recent years, there has been a considerable increase in Defence Cooperation activities undertaken by the Indian Army. Accordingly, an increasing number of Friendly Foreign Countries (FFCs) have shown keen interest to engage with the Indian Army, which is viewed not only as the world's second largest standing Army but also as a professional, apolitical force with extensive combat experience and exemplary training standards. Till mid May, 2019, Indian Army is engaged with 99 countries through Defence cooperation activities.

3.36 ***Structured Engagements:*** The Government of India (GoI) has entered into Memorandums of Understanding (MoUs) / Defence Cooperation Agreement with 59 countries. Indian Army holds bilateral Army-to-Army Staff Talks (including Executive Steering Groups) with 15 countries. These provide the formal basis for progressing our defence cooperation initiatives. For engagement with Nepal, we have a joint Ministry of Defence / Ministry of External Affairs mechanism called Nepal India Bilateral Consultative Group on Security (NIBCGS). A similar multi Ministry engagement exists with Russia wherein a 'Road Map for the Development of India – Russia Defence Cooperation' was signed during the Annual Meeting of Defence Ministers held in Russia on June 23, 2017. There are 70 Military/Defence Attachés in 44 Defence Wings including 31 from the Army posted in 27 Defence Wings abroad. Similarly, 63 countries are represented by resident Defence Attaches and five countries through accredited Defence Attaches in foreign embassies in New Delhi. The Foreign Service Attaches in Delhi were actively engaged in 2018 through conduct of Foreign Service Attache's Briefing, conducted on November 27, 2018 and Foreign Service

Attache's tour to Leh conducted from October 16-17, 2018.

3.37 ***Visits:*** The year 2018 was witness to the conduct of numerous high level and functional level visits. The Army Chiefs of UK, Sri Lanka, RoK, Nepal, Bangladesh and Myanmar visited India while the COAS visited Nepal, Sri Lanka, Russia, Vietnam, Tanzania and Kenya. A 'Conclave for Chiefs of BIMSTEC Countries' was also organised in India from September 15 to 16, 2018.

3.38 ***Joint Exercises:*** Joint Exercises with Friendly Foreign Countries constitute the most visible component of our defence cooperation activities. These events showcase our professionalism globally and provide valuable exposure to our troops. Three new joint multilateral / bilateral exercises have been instituted with BIMSTEC nations, African Nations and Japan during the year where the following new exercises have been approved:

(a) Joint Exercise with Uzbekistan - to be held in Uzbekistan in year 2019.

(b) Joint Exercise with UAE - to be held in India in year 2019.

(c) Joint Exercise with Saudi Arabia - to be held in Saudi Arabia in year 2019.

(d) Joint Exercise with Egypt - to be held in India in year 2019.

3.39 Indian Armed Forces contingent participated in Exercise PEACE MISSION 2018 in Russia under SCO framework for the first time in August 2018. Joint bilateral Exercise with Kazakhstan has been upgraded from Platoon level to Company level and renamed as KAZIND. India hosted the inaugural multilateral Exercise for BIMSTEC nations at Pune in September 2018 wherein all BIMSTEC nations including India participated in the exercise. We hosted inaugural multination exercise for African nations at Pune in March 2019 where in 17 African nations participated in exercise with troops and three African nations deputed observers. India also co-hosted "Exercise on Military Medicine with Myanmar" under the frameworks of ASEAN Defence Ministers' Meeting Plus (ADMMP) at Lucknow in March 2019 wherein 16 countries participated. 23 Exercises with friendly foreign countries have been conducted by Indian Army in the year 2018-19.

3.40 ***Courses:*** Courses conducted in our training establishments are valued worldwide for professional content and apolitical nature. Indian Army offered 2821 slots to foreign officers and NCOs for courses in Indian Army Training institutes. On the other hand, 76 Indian Army personnel were trained abroad in foreign military institutions. Tailormade training in desired fields has been planned for 1205 personnel of Afghanistan, Sri Lanka, Bangladesh and certain CAR and African Nations. Additionally, structured exchanges were also undertaken between instructors / cadets of our training/ pre-training institutions with their Friendly Foreign Countries counterparts both in India and abroad.

3.41 ***Exchanges Under SCO Framework:*** Indian Army participated in all practical actions under the SCO framework including Joint Exercise PEACE MISSION 2018 (August 2018), Defence Ministers' Meeting (April 2018), Military Band display (alongside Defence Ministers' Meeting) and Meetings of Heads of International Military Cooperation Departments, Experts working Groups and Meeting of Chiefs of Joint Staff in 2018. The interaction with SCO member States through the SCO Forum in military domain will be pursued further in the coming years.

3.42 ***International Army Games (Russia) 2018:*** The Indian Army contingents participated in the Tank Biathlon and Elbrus Ring Competitions of International Army Games (Russia) – 2018 from August 1 to 10, 2018 in Russia. Indian Army also deputed five observers in various competitions held in Russia and China.

3.43 ***Military Ceremonial Events:*** 32 member India Army Band participated in the Military Band Display of SCO member states held in Beijing from April 22 to 25, 2018. Our Pipers also participated in the Annual Commemoration Ceremony of WW-I held in France from November 3 to 10, 2018. A contingent of Indian Army participated in Haifa Day Centenary on September 6, 2018 at Haifa, Israel.

3.44 ***Medical Assistance:*** Medical assistance provided to FFCs has emerged as an important cornerstone of our defence cooperation initiatives. Our medical missions, training of foreign medical personnel in our medical schools and establishment of hospitals/gifting of medicines have earned us tremendous goodwill. Indo-Tajikistan Friendship Hosp (ITFH) continued to function efficiently in Qurgen Teppa, Tajikistan. Treatment of numerous FFC Armies' personnel / their dependents from Afghanistan, Bangladesh, Nepal and Sri Lanka was carried out in India during the year.

Indian Army Contingent Participating in Exercise Kazind in Almaty Kazakhstan: September 2018

India - Russia Joint Exercise Indra (Army) 2018

Tactical Action : India - Russia Joint Exercise Indra (Army) 2018 Conclusion

3.45 Defence Cooperation has emerged as an important pillar of India's diplomatic efforts and Indian Army has been at the forefront of these endeavours. With India's growing stature and eagerness of various countries to engage with us, activities in this field are poised to grow manifold in the years to come. Indian Army's Defence Cooperation efforts are being synergised to meet our key national objectives. Endeavour in coming years would be to further optimise our efforts in creating dependencies in our immediate/ strategic neighbourhood.

MODERNISATION & EQUIPMENT

3.46 Indian Army's modernisation strategy covers the entire spectrum of conflict. Major initiatives have been undertaken at organisational and ministerial levels to provide impetus to acquisition and defence reforms.

3.47 During the Financial Year 2018-19, 13 contracts worth ₹ 8277.40 crore have been signed for capital procurement of defence equipment for Army such as Bullet Proof Jacket (BPJ), Guns, Short Span Bridge, Electronic Fuzes and Ammunition. The key facts of modernisation pursuits for various Arms and Services are as follows:

(a) ***Mechanised Forces:*** Emphasis is on increasing effectiveness index of existing fleet of Tanks and BMPs through night enablement, enhancing mobility and accuracy.

(b) ***Infantry:*** Impetus is being given to augmenting survivability, mobility and close quarter battle capability for combat and special operations. A major boost has been given to Infantry with the procurement of Bullet Proof Jackets and Assault Rifles.

(c) ***Artillery:*** Capability enhancement of Artillery is focused on acquiring long range firing platforms and increasing lethality, precision and surveillance capabilities. Upgrades of Unmanned Aerial Vehicle systems, weaponisation of aerial platforms and induction of additional artillery guns.

214mm Pinaka MLRS Weapon System

(d) ***Army Air Defence:*** Emphasis is being laid on upgrades of existing fleet, responsive air defence for Strike formations in plains and tactical air defence in mountains. In addition, procurement / upgrades of Air Defence Guns and equipment are at fairly advanced stages.

(e) ***Army Aviation:*** Army Aviation is enhancing its firepower and surveillance capability. The Army Aviation fleet will undergo a major transformation with induction of new helicopters including weaponised platforms which enhance the fighting capability.

(f) ***Signals:*** Major impetus has been laid on Electronic Warfare equipment, achieving robust communication grid in high altitude area and end to end data encryption.

(g) ***Engineers & Combat Logistics:*** Emphasis has been laid on acquiring all terrain mobility, versatile bridging equipment, family of mines and enhanced engineering support in mountains as well as for mechanised forces in plains / deserts.

3.48 A number of initiatives have been undertaken to streamline and hasten the procurement process keeping in view the provisions of Defence Procurement Procedure – 2016. The Government regularly monitors progress of ongoing procurement projects, so as to ensure that the Army is equipped to meet the entire spectrum of security challenges.

3.49 ***Alignment with 'Make in India':*** Indian Army's capability development plans are aligned with the 'Make in India' initiative to commitment to Nation Building. Of the 16 cases of Acceptance of Necessity(AoN) accorded to major Schemes in the current Financial Year, 10 Schemes are 'Buy Indian (IDDM)', 4 are 'Buy (Indian)' and 1 Scheme is 'Buy' and 'Make' with ToT to OFB. The Armed Forces have also been accorded enhanced financial powers to meet immediate requirements.

3.50 ***Army Design Bureau:*** The Army Design Bureau(ADB) in the Perspective Planning Directorate is spearheading the Indian Army's initiative of supporting, developing and handholding of Indian Defence Industry so as to achieve self reliance in defence equipment as part of 'Make in India' initiative of Government of India. One of the major initiatives undertaken by the ADB was the publication of three Compendiums of Problem Definition Statements which identified the core issues of concern for the Indian Army. ADB is also supporting development of technology through Army Technology Board (ATB), Technology Development Fund (TDF), Make-II and Innovation for Defence Excellence (iDEX). In the year 2018, nine ATB projects, nine TDP projects,

seventeen Make-II projects and three iDEX projects have been launched to support development of technologies which can provide solutions to Problem Statements. Twenty two solutions provided by Industry are under examination by Field Formations at operational locations.

3.51 ***Ammunition***

(a) ***Ammunition Stocks:*** A number of major initiatives have been taken for improving ammunition stocks of Indian Army. This multi-pronged strategy is going to result in gradual build-up of ammunition.

(b) ***Ammunition Roll on Plan:*** The management of ammunition is done by placing five year Roll on Indent on Ordnance Factory Board (OFB) to enable it to plan its production. The indent is placed on mutually agreed targets keeping the OFB capacity in view. The first five year Roll on Indent for 2010 to 2014 was placed on OFB in February 2010. The second Roll on indent was placed on OFB in October 2013 for projected requirement of five year perspective plan for year 2014 to 2019. Production reports of OFB are being monitored monthly and shortfalls are being highlighted.

(c) ***Ammunition Road Map:*** During mid course evaluation of Five Year Roll on Plan of ammunition, need was felt for preparing Ammunition Road Map to address the criticalities. Ammunition Road Map was approved by Ministry of Defence to meet ammunition requirement. The ammunition procurement plan approved under the Ammunition Road Map includes placing of additional requirements on OFB and procurement of some ammunition items ex-import.

(d) ***Emergency Procurement of Ammunition:*** Ministry of Defence delegated Emergency Procurement powers to VCOAS in October 2016. As a result of this delegation, done with a view to making up of critical deficiency of Indian Army, many contracts were finalized for various critical ammunition, armament, vehicles and spares item. The procurements undertaken have improved the state of equipment holdings of Indian Army.

(e) ***Delegation of Powers to Maintain Minimum Stock Level of Critical Ammunition and Spares:*** In order to ensure that the Armed Forces are always well-equipped for meeting emergent operational requirements, the powers for procurement to maintain minimum levels of critical ammunition and critical spares, have been delegated to the Service Headquarters (SHQs). The power and responsibility is therefore given to the Armed Forces to ensure that the minimum critical levels for ammunition and spares are maintained at all times.

(f) ***Manufacture of Ammunition for Indian Army by Indian Industry:*** To facilitate development of indigenous capacity and reduce import dependence with the long-term objective of building capacity within the industry as a robust alternative source of ammunition, the Government has approved manufacturing of selected ammunition for Indian Army by Indian Industry.

3.52 ***Armament***

(a) ***Armament Ex OFB:*** Based on Annual Provision Review, indent is placed on OFB for manufacture of armament for which OFB has the Capacity and Technology.

(b) ***Armament Ex Import:*** Due to non-availability of technology, certain armaments are also being imported to make up the deficiency.

(c) ***Delegation of Powers for maintaining 100% stock level of Critical Armament & Mines:*** Financial powers have been delegated to VCOAS for undertaking procurement upto 100% authorization in respect of some identified critical armaments and mines.

Weapon Night Sights and Surveillance Devices

3.53 The requirement of Image Intensifier Night Vision Devices (NVD) for Armoured Fighting Vehicle (AFV) and Non- AFV applications of Indian Army are being met. Present procurement cases include Hand Held Thermal Imager (HHTI), HHTI with Laser Range Finder (LRF), Passive Night Vision Goggles (PNVG), Passive Night Vision Binoculars (PNVB), Passive Night Sight (PNS) for INSAS Rifle/LMG and from OLF include Image Intensifier & Thermal Imagery Sights for AFV platforms.

3.54 With a view to maintaining the operational preparedness of Armed Forces, the scope of delegated financial powers to Service HQ has further been widened through delegation of Emergency Procurement powers to Vice-Chief of Services for undertaking procurement of operationally critical Arms, Weapons, Ammunition, Spares and Missiles, to be exercised under the authorisation of respective Service Chiefs.

RASHTRIYA RIFLES

3.55 Rashtriya Rifles (RR), since its raising, has rendered invaluable assistance towards security as well as socio-economic development of the State of Jammu and Kashmir. During 2018, Rashtriya Rifles has relentlessly pressed on with its operational tasks. The Force as a whole provided pivotal support for maintaining peace and tranquility in J&K which otherwise continues to be in turmoil.

3.56 Utmost patience and perseverance along with a sense of urgency, were maintained for conversion of the untiring efforts of Rashtriya Rifles into successful operations. Units of Rashtriya Rifles were able to exert unrelenting pressure on the terrorists and their sympathizers. The efforts of the Force have ushered in peace and normalcy in the area, to a large extent. The Rashtriya Rifles has neutralised 251 terrorists (Two hundred four killed, forty seven apprehended) and has also recovered significant cache of warlike stores.

3.57 RR units and formations played a major role in ensuring peaceful conduct of Shri Amarnath Yatra by early and tiered deployment, aggressive domination and sound intelligence network. Full assistance including medical cover was provided to facilitate the move of the devotees.

3.58 A large number of people friendly activities were undertaken to shape perception about the Army and the Government. This has made a visible change in the way people perceive the Army, besides increasing the comfort levels between 'Awaam' and 'Jawan'. Also, Youth Employment and Guidance Nodes (YEGN) set up by Rashtriya Rifles, targeted the youth of the State effectively. This has helped them explore avenues of higher education and employment, thus guiding them away from the lure of easy money and a misplaced sense of power through terrorism.

3.59 Creation of Rashtriya Rifles, the only specially structured Counter Insurgency/Counter Terrorism Force in the world has been one of the finest examples of strategic decision with a long term perspective. The expertise gained is invaluable in building comprehensive National Power and needs to be preserved in perpetuity. It will be the endeavour of the Force to eliminate terrorism in its entirety and continue to guide the populace, particularly the youth, to join the national

mainstream. In doing so, catering to the aspirations of the people and complete prevention of human rights violations will remain to be the imperative guiding parameters for the Rashtriya Rifles.

TERRITORIAL ARMY (TA)

3.60 The Territorial Army Act was enacted in 1948. The concept of the Territorial Army is to provide part time military training to gainfully employed citizens who become competent soldiers as a result of the military training imparted to them and work as a back-up force to regular Army.

3.61 ***CI/CT and Internal Security:*** Approximate 75 percent of TA units are deployed in Counter Insurgency/ Counter Terrorism environment in Jammu & Kashmir and North-East. These units are playing an important role in security insurgency prone areas and are carrying out assigned tasks in a professional manner.

3.62 ***Territorial Army Company for Security Duties of National War Memorial (NWM):*** TA Company has recently been deployed for Security duties of National War Memorial (NWM) at New Delhi.

3.63 ***Induction of Women TA Officers:*** The induction of women officer in Department TA is already in vogue. Advertisement has been published for Commissioning of Ex Defence women service officers into TA.

3.64 ***Flood Relief:*** The TA units (122 Infantry Battalion (TA) MADRAS and 414 ASC Battalion Marketing (TA)) have actively participated in relief and rescue work during Kerala floods. They have worked selflessly and relentlessly to rescue and provide shelters to the affected citizens. Their hard work was appreciated by all stakeholders including the State Government.

Other Initiative/ Achievements

3.65 ***Reach Out Campaign:*** A campaign has been launched to showcase the organization with all its features, to the public, by conducting presentations at professional institutes and leading corporate houses. It has been an initiative with an aim to attract youth and professionals.

3.66 ***Army Day and Republic Day Parade 2019:*** Contingent of 102 Infantry Battalion (TA) PUNJAB participated in Army Day and Republic Day Parade 2019.

Marching contingent in the Republic Day Parade 2019

Calling on the President of India by TA Fraternity

The success of Army Day and Republic Day Parade has been immensely contributed by the Battalion contingent on behalf of Territorial Army and the same has been appreciated by the senior dignitaries.

3.67 ***Territorial Army Day Celebrations:*** The Territorial Army celebrates its Raising Day on October 9 every year. Following events were organised at Delhi to celebrate the occasion for the year 2019:

(a) ***Calling on The President of India:*** As part of TA Day Celebrations, Officers, JCOs, ORs and families of the Territorial Army, called on The President of India, at Rashtrapati Bhawan on October 11, 2018.

(b) ***TA Half Marathon:*** TA Half Marathon was held by the Territorial Army along with the Athletic Federation of India as the 'First official National Marathon of India' at Carriappa Parade Ground on October 2, 2018 with an aim to project TA as a vibrant and committed organisation and also to promote healthy lifestyle. The event was open to all citizens of India. The event saw enthusiastic participation by more than seven thousand participants.

(c) ***Band Display at India Gate:*** Territorial Army Symphony Band conducted a band display at India Gate on October 13 and 14, 2018. The event was witnessed by a huge gathering who appreciated the display.

3.68 ***COAS Silver Trophy For The Year 2018-19:*** 105 Infantry Battalion (TA) RAJ RIF has been declared as Best Infantry Battalion (TA) amongst 43 TA units (Infantry & Home & Hearth Units).

Band Display at India Gate

3.69 ***Honours & Awards 2019:*** The following Gallantry/Distinguished service Awards have been conferred to Territorial Army personnel on the occasion of Army Day & Republic Day 2019:

(i)	Ashok Chakra	-	1
(ii)	Param Vishishth Seva Medal	-	1
(iii)	Sena Medal	-	3
(iv)	COAS Commendation Card	-	10
(v)	VCOAS Commendation Card	-	2
(vi)	GOC-in-C Commendation Card	-	25

UN MISSIONS

3.70 Indian Army continues to play a lead role in UN peacekeeping with presence in 7 out of 14 UN missions worldwide. The Indian Army's contribution of over 6000 personnel deployed either as part of contingents or as Staff Officers and Military Observers places India amongst the top five troop contributors to UN missions. The contingents of Indian Army are deployed in some of the most violent and volatile UN missions. In defence of the mandate and in the interest of world peace, the troops have carried out a number of major operations earning praise from the UN as well as the international community. The professionalism and gallant actions by Indian peacekeepers have repeatedly been recognized by the UN. Our outreach programmes to integrate internally displaced personnel, communities and tribes into mainstream social fabric have had a major impact on the peace process in these violent areas which has been appreciated by the missions, international community and local populace.

3.71 The enhanced equipment serviceability and availability due to measures undertaken at Ministry of Defence and Army Headquarters are ensuring the highest standard of operational efficacy in UN missions. India has also taken a lead role in enhancing women representation in UN missions by implementing the UN requirement of deploying 15% women officers as Staff Officers and Military Observers.

3.72 For the first time in the history of Indian Army, a company of Kazakhstan has been co-deployed with Indian Battalion in Lebanon (UNIFIL) with effect from October 31, 2018. This initiative by India has been lauded by the United Nations and the international community. Indian Army has trained approximately 150 officers and soldiers from 45 countries over the last one year in CUNPK. Five Mobile Training Teams have also visited Kazakhstan, Myanmar, Vietnam and Zambia to train their troops for peacekeeping.

CHAPTER 4

INDIAN NAVY

4 INDIAN NAVY

4.1 India is a maritime nation and the country sits astride a large number of busy International Shipping Lanes that criss-cross the Indian Ocean. About 90% of our trade by volume and 70% by value is transported over the seas. For a rapidly growing economy seeking new markets worldwide, the volume of maritime trade will only grow in times to come.

4.2 India's economic resurgence is directly linked to her overseas trade and energy needs, most of which are transported by sea. Mercantile trade constitutes a substantial portion of India's GDP and is likely to increase in the future. Maintenance of a secure maritime environment which enables unhindered pursuit of economic activities is, therefore, essential for the overall economic development and security of the country.

4.3 The last decade has witnessed India's dependence on her maritime environment expanding substantially as her economic, military and technological strength grew, her global interactions widened and her national security imperatives and political interests stretched gradually beyond the Indian Ocean Region. It can thus be assumed that the 21st century will be the 'Century of the Seas' for India and that the oceans will remain a key enabler in her global resurgence.

4.4 The Indian Navy (IN) has been playing a maritime leadership role in the Indian Ocean Region due to its multi-dimensional capabilities and active presence in the region. The environment in India's maritime neighbourhood is dynamic with increased instabilities, deepening geopolitical and ethnic faultiness, growing military capabilities and wide range of security challenges. These pose a combination of conventional and sub-conventional threats emanating to India, at and from the seas. These threats and challenges require the Indian Navy to remain effective across the entire spectrum of combat operations and constantly reshape itself to meet future challenges.

4.5 The Indian Navy is the key enabler and guarantor of the country's maritime sovereignty and myriad use-of-the-sea activities. This is discharged by the Navy through its four roles – military, diplomatic, constabulary and benign. The objective of the Navy's military role is deterrence/ dissuasion against any intervention or act which is against our national interests, and the ability to inflict a crushing defeat on the adversary in the event of hostilities. A major objective of the Navy's Constabulary role is to ensure coastal and offshore security and implement anti-piracy measures in conjunction with the Coast Guard and other Central and State agencies.

4.6 A high degree of Maritime Domain Awareness (MDA) is being maintained by utilising IN assets and resources. The IN stands fully ready to respond to any contingency in an appropriate manner. A new Mission-based deployment concept has been implemented. Mission-ready ships and aircraft are being deployed in 'pole-positions' along critical sea lanes of communications and choke points. The deployed assets are ready to meet any eventuality across the spectrum of operations. One frontline Fleet ship has been continuously deployed in the Gulf of Aden region since October 2008 for anti-piracy operations and provides safe escort to merchant ships of Indian and foreign nationalities.

4.7 Protection to our offshore assets, including Offshore Development Areas (ODAs) is being ensured through deployment of Immediate Support Vessels (ISVs) and other assets. Regular exercises have been conducted to validate the safety and security of ODA platforms, which are vital to India's energy security.

4.8 The IN has been actively pursuing activities towards capability building and capacity enhancement of Navies of friendly countries in the IOR. Towards this end, India has been providing hardware and platforms, which includes ships and aircraft, for Exclusive Economic Zone (EEZ) surveillance. IN has also been instrumental in development of maritime infrastructure of friendly nations. IN initiatives contribute towards developing operational and technical skills to friendly foreign countries.

4.9 A new Transition cycle that allows for a focused and gradual transition of ships from periods of maintenance layoffs to full scale operations has been implemented. The new Transition cycle focusses efforts of Operational Commanders on the training and safety inspections of ships prior to their deployment for operations. This is enhancing both 'Combat Readiness' and 'Safety Standards' on board ships.

Overseas Operations

4.10 ***DIMDEX-2018:*** IN ship Kolkata participated in the Doha International Maritime Defence Exhibition (DIMDEX-18) from March 11-14, 2018 wherein the ship showcased the 'Make in India' drive of the Government. A Passage Exercise (PASSEX) was also conducted with Qatar Navy.

4.11 ***Western Fleet (WF) Overseas Deployment (OSD)***

(a) WF ships comprising IN ships Mumbai and Trikand were deployed for WF OSD to Southern Indian Ocean Region countries of Seychelles, Mauritius, Reunion, Madagascar and Comoros from April 15 - May 23, 2018. During the deployment, the ships, along with P8I aircraft, participated in Phase III of EX-VARUNA, at/ off Reunion Island.

(b) IN Ships Tarkash & Kolkata participated in WF OSD from September 4 – October 29, 2018. The main aim of the deployment was participation in Exercise IBSAMAR-VI off Simon's Town, South Africa with South African and Brazilian navies. The ships visited Mombasa (Kenya), Maputo (Mozambique), Simon's Town (South Africa) and Toamasina (Madagascar) during the deployment.

4.12 ***Eastern Fleet (EF) Overseas Deployment***

(a) IN Ships Sahyadri, Shakti and Kamorta visited various ports in IOR, South China Sea and West Pacific region during EF OSD from April 30 - July 6, 2018. The ships took part in various bilateral/ multilateral exercises during the OSD namely SLINEX-18, MALABAR-18, RIMPAC-18, KAKADU-18 and SIMBEX-18.

(b) EF ship Rana was deployed for EF OSD from September 17 – November 24, 2018. The ship participated in International Fleet Review (IFR) at Jeju, South Korea from October 8-15, 2018. The ship also participated in IND-INDO Bilateral Exercise at Surabaya, Indonesia from November 12-16, 2018.

4.13 ***NAVDEX/ IDEX 2019:*** IN ship Prabal was deployed to Abu Dhabi from February 12-21, 2019, to participate in Naval Defence Exhibition (NAVDEX)/ International Defence Exhibition (IDEX-2019), to showcase India's indigenous ship building capability.

Major Exercises

4.14 ***Exercise Sea Vigil-19:*** The maiden large scale, Pan India Coastal Defence Exercise Sea Vigil-19 was conducted along the entire coastline and Exclusive Economic Zone of India on January 22-23, 2019 activating all agencies involved in the coastal security construct, and to identify gaps and mitigating measures. The mega exercise undertaken along the entire 7516.6 kms coastline and Exclusive Economic Zone of India saw participation by more than 200 ships, aircraft and patrol boats manned and operated by various security agencies.

4.15 ***AMPHEX-19:*** IN ships Shakti, Kuthar, Gharial and Airavat participated in Tri-Service Exercise 'AMPHEX-19' at Port Blair from January 21-24, 2019. Various naval operations, including airdrops as well as amphibious landings were exercised at Radhanagar beach on Swaraj Dweep, as part of the exercise.

4.16 ***TROPEX-19:*** IN's largest biennial war game, Theatre Level Operational Readiness Exercise (TROPEX-19) was conducted from January-March 2019 across the entire IOR. The exercise was coordinated by the Naval Headquarters with participation of three Commands of the Navy and the Tri-Service Command at Port Blair. In addition, units of Indian Army, Indian Air Force and Indian Coast Guard participated in the exercise.

Exercise with Foreign Navies

4.17 ***Milan-18:*** Milan-18 was conducted at Port Blair from March 6-13, 2018. More than 30 delegates from 16 countries and 11 ships from eight countries participated in the Milan.

4.18 ***Varuna – 18:*** Exercise Varuna 2018 (16th Edition) between the Indian and French Navies was conducted in three phases namely Harbour Phase (March 18–20, 2018) and Sea Phase I (March 20-24, 2018) as well as Sea Phase II (May 2-3, 2018).

4.19 ***IN-UAE Navy Maiden Bilateral Exercise 'Gulf Star':*** IN Ships Gomati and Kolkata participated in the maiden IN – UAE Navy bilateral exercise Gulf Star off UAE from March 18-22, 2018. The exercise helped in maintaining and strengthening maritime relations with another Navy in the IOR.

4.20 ***INMEX-18:*** IN ships Sahyadri and Kamorta participated in maiden Indian-Myanmar Navy Bilateral Exercise from March 31 - April 3, 2018 off Visakhapatnam. Myanmar Navy ships UMS Sin Phyu Shin and Inlay participated in the exercise.

4.21 ***Malabar-18:*** IN ships Sahyadri, Kamorta and Shakti alongwith P8I participated in Malabar-18 from June 7-15, 2018. Harbour Phase was conducted from June 8-10, 2018 at Guam, USA and the Sea Phase was conducted off North Mariana Islands in Pacific Ocean between IN, US Navy and JMSDF.

4.22 ***SIMBEX-18:*** The silver jubilee edition of the annual Singapore-India Maritime Bilateral Exercise, was held from November 10-21, 2018. Six ships and one submarine each of Republic of Singapore Navy and Indian Navy participated in the exercise.

SIMBEX-18

4.23 ***Konkan-18:*** India-UK Bilateral Naval exercise, Konkan was conducted from November 28 – December

5, 2018. The Indian Navy was represented by IN ship Kolkata, IN submarine Shankush and a Dornier aircraft and the Royal Navy by HMS Dragon, a Type 45 Destroyer.

4.24 ***Indra Navy – 18:*** Indra Navy-18 between Indian & Russian Navy was conducted off Visakhapatnam. RFN ships Varyag, Penteleyev and Boris Butoma (RFN Tanker) and IN Ships Ranvir, Satpura, Kadmatt, Kuthar, Khanjar, Jyoti and a submarine participated in the exercise.

Coordinated Patrol (CORPAT) with Indian Ocean Region Littoral Navies

4.25 Coordinated Patrols along the IMBL are being conducted with littoral Navies of the Indian Ocean Region (IOR) as per established MoUs and Standard Operating Procedures (SOPs).

4.26 ***India-Thailand Coordinated Patrol:*** The 25th, 26th and 27th cycle of Indo-Thai CORPAT was held from January 23-31, June 16-23 and November 8, 2018 respectively.

4.27 ***India-Myanmar Coordinated Patro:*** The 6th and 7th Cycle of Indo-Myanmar CORPAT was conducted from March 13-18, 2018 and September 24 – October 1, 2018 respectively.

4.28 ***India - Indonesia Coordinated Patrol:*** The Opening Ceremony of 31st and 32nd Ind-Indo CORPAT was held on May 24, 2018 and October 9-27, 2018 respectively.

Anti-Piracy

4.29 ***Anti-Piracy Patrol:*** As part of its wider role of providing security to shipping in the Indian Ocean Region, the Indian Navy continues to deploy one ship for anti-piracy patrol in the Gulf of Aden (GoA). A total of 72 IN warships has been deployed till March 2019, which have safely escorted more than 3440 (including 413 Indian flagged) ships with over 25,062 mariners embarked. Till April, 2019, IN has thwarted 44 piracy attempts and apprehended 120 pirates. IN's presence in this region is being maintained to ensure safety and security of Indian trade.

Boarding Operations

Coastal Security

4.30 Indian Navy is the nodal agency responsible for overall maritime security which includes coastal security and offshore security. Due impetus has been accorded to coastal security issues in coordination with various national agencies and organisations. IN is offering assistance to Border Security Force/ Central Industrial Security Force/ State Marine Police for procurement, maintenance and exploitation of boats for coastal security.

4.31 The National Command Control Communication Intelligence (NC3I) Network inter-linking 51 stations of the IN and ICG and integrating multiple sensors is being effectively exploited towards developing domain awareness and for inter-agency coordination. IN is also enhancing coordination between all maritime

stakeholders, including the Indian Coast Guard, Indian Air Force, Central and State maritime agencies, and national intelligence agencies for Maritime Domain Awareness and Network Centric Operations. In addition, the Navy is pursuing agreements for sharing of white shipping and air traffic information between friendly nations, both in the IOR and beyond.

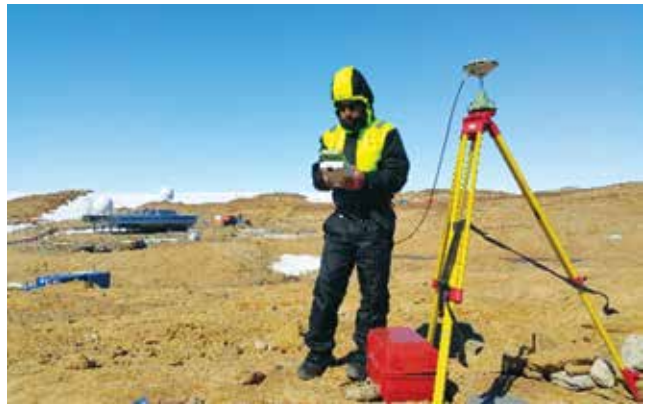
4.32 Towards strengthening coastal and offshore security, Fast Interceptor Craft (FICs) and Immediate Support Vessels (ISVs) inducted into the IN are being utilised. Coastal and Offshore Security exercises are being conducted regularly in all coastal States and UTs towards streamlining existing mechanisms, improving inter-agency coordination and strengthening maritime, coastal and offshore security. The IN continues to proactively engage with the fishermen and coastal communities through community interaction programmes towards integrating them into the maritime security matrix. IN is strengthening the existing mechanisms and increasing the complexity of such exercises, with the involvement of all stakeholders.

4.33 ***GSAT 6 Based Tracking Transponders for Sub-20 m Fishing Boats:*** Towards strengthening maritime and coastal security, the Indian Navy and Indian Space Research Organisation (ISRO) are jointly steering pilot implementation of GSAT-6 satellite-based tracking transponders for 500 boats each, in the coasts of Gujarat and Tamil Nadu, in conjunction with Ministry of Home Affairs (MHA) and Department of Animal Husbandry and Fisheries (DADF)/ State Fisheries Depts.

Foreign Cooperation

4.34 ***White Shipping Information Exchange (WSIE) Agreements:*** The Indian Navy has been engaging with various Friendly Foreign Navies for concluding and signing of Agreements for exchange of White Shipping Information, towards enhancing our Maritime Domain Awareness in our areas of interest. Till 2017 White Shipping Agreements had been signed with 13 countries in the past year, WSIE agreements have been signed with Nigeria, Qatar, Kenya, Seychelles and Thailand. Further, WSIE agreements have been operationalised with Brazil, France, Israel, Kenya, Spain and United Kingdom and Virtual Regional Maritime Traffic Center (V-RMTC), Italy in the last year.

4.35 ***37th Indian Scientific Expedition to Antarctica:*** A Hydrographic survey team consisting of one Long Hydrography course qualified officer and one Hydro sailor participated in the 37th Indian Scientific Expedition to Antarctica from December 2017 to March 2018 for surveying India Bay area. In addition, two Naval Medical Officers were also deputed from November 2017 - March/ April 2019.



37th Indian Scientific Expedition to Antarctica

4.36 ***Commissioning of SLNS Sindhurala:*** The second Advanced Offshore Petrol Vehicle (AOPV) built by Goa Shipyard was delivered to the Sri Lankan Navy on March 23, 2018 and was commissioned as SLNS Sindhurala on April 19, 2018.

4.37 ***Exclusive Economic Zone (EEZ) Surveillance:*** The IN has regularly undertaken EEZ surveillance of Maldives, Mauritius and Seychelles, as indicated below, based on the request of the host Government:

(a) ***EEZ Surveillance of Maldives:*** IN ship Sumedha was deployed to undertake Joint EEZ surveillance off Male in accordance with the

area promulgated by MNDF Coast Guard from May 5-23, 2018.

(b) ***EEZ Surveillance of Mauritius and Seychelles:*** IN has continued to undertake EEZ surveillance of Mauritius and Seychelles once in six months, with the latest one being undertaken in February 2019.

4.38 ***Handing Over of 2nd Dornier to Seychelles:*** A second Dornier aircraft was handed over to Seychelles Air Force on June 25, 2018 at a ceremony held at New Delhi. The first Dornier was supplied to Seychelles in January 2013.

4.39 ***Cyclone 'Idai''– Mozambique:*** Based on a request received from the Government of Mozambique to provide Humanitarian Assistance Disaster Relief (HADR) to local population post devastation caused by Cyclone 'Idai', which struck the coast of Mozambique on March 15, 2019, the ships of the First Training Squadron (1TS) namely IN Ships Sujata and Shardul and Indian Coast Guard Ship (ICGS) Sarathi operating in the Southern Indian Ocean were diverted to Port Beira, Mozambique. The ships have rescued more than 192 survivors from Buzi area, which is cut off from the mainland. Medical assistance has been provided to over 1,500 affected people.

Humanitarian Assistance Disaster Relief at Mozambique

Navy to Navy Interaction

4.40 ***IWG Meeting on HADR:*** The 3rd meetings of IONS Working Group (IWG) on HADR was conducted under the aegis of Headquarters Eastern Naval Command, Vishakhapatnam from September 27-28, 2018. Participants from the IWG member nations including Australia, Bangladesh, France, India, Indonesia, Iran, Kenya, Oman and Thailand participated in the two day event. The 'Guidelines on HADR for IONS nations', prepared by IN was validated by conducting of a Table Top Exercise as part of the meeting.

4.41 ***Indian Ocean Naval Symposium (IONS) Activities:*** The IONS presently has 24 member countries with eight countries with observer status. Iran is the current 'Chair' of IONS. The construct has become an important Maritime initiative to promote maritime cooperation amongst the member countries. Indian Navy conducted commemorative activities for IONS 10th anniversary from November 13-14, 2018 at Kochi. Events included commemorative Seminar, Tall ship sail together from Kochi to Muscat, tracing the ancient maritime trade and spice route, and release of Special Day cover. Chiefs of 11 Navies and 27 countries participated in the event.

4.42 ***Training of Vietnam Peoples Navy (VPN) Personnel:*** Training of 20 VPN personnel in Submarine Mechanical and Electrical Repairs was successfully

undertaken at Naval Dockyard, Visakhapatnam for duration of six months.

Commissioning and Decommissioning

4.43 ***Landing Craft Utility (Mk IV):*** The third, fourth and fifth ship of the LCU (Mark IV) project, IN LCU L53 was commissioned on April 25, May 25 and December 19, 2018 respectively at Port Blair.

4.44 ***INDC Danteshwari:*** Naval Institute of Dental Sciences was commissioned as Indian Naval Dental Centre (INDC) Danteshwari on December 12, 2018 by the Chief of the Naval Staff. The multi-specialty Dental Surgical Unit with latest treatment facilities has also been augmented with the additional task of training staff of IN as well as Foreign Navies.

4.45 ***IN Hospital Ship Sandhani:*** Naval Hospital Karanja was commissioned as INHS Sandhani on December 24, 2018. Sandhani is the 10th Indian Naval Hospital Ship to have joined the medical services of the IN.

4.46 ***INS Kohassa:*** Naval Air Station Shibpur was commissioned as INS Kohassa on January 24, 2019.

4.47 ***Dornier Induction:*** The first two aircraft of the 12 new Dornier Contract were formally inducted into the Indian Navy at Hindustan Aeronautics Limited (HAL), Kanpur on January 28, 2019. Equipped and fitted with latest sensors, these aircraft will boost the surveillance effort towards security of maritime areas of the nation.

Inducted Aircraft – IN 252

4.48 ***Delivery and Induction of Floating Dock Navy (FDN) – 2:*** FDN-2, constructed by M/s Larsen & Tubro (L&T), was delivered on March 12, 2018. The induction ceremony was held on May 25, 2018 with the LG, Andaman and Nicobar Islands as Chief Guest. The vessel has significantly enhanced the repair capability at ANC. The FDN-2 is capable of docking ships with draught up to 7 meters and displacement up to 8000 tons.

Induction of FDN-2

4.49 ***Decommissioning:*** Indian Naval ships Nirbhik, Nirghat, LCU 36, LCU 37, Ganga, Cuddalore, Cannanore and Konkan were de-commissioned in 2018. Indian Naval ships LCU 38 and LCU 39 was decommissioned on March 30, 2019.

4.50 ***Launching:*** The 3rd submarine of Project-75, namely Karanj (SM-3), was launched on January 31, 2018 at MDL, Mumbai.

Launch of Karanj (SM-3)

Naval Aviation

4.51 Naval Aviation is poised at a crucial juncture on its path towards modernisation. Numerous initiatives have been undertaken in the quest towards ensuring a potent, professionally competent and operationally ready Naval Air Arm of the future. Towards this, modern, state-of-the-art aircraft such as P8I, Hawk AJTs and MiG-29K fighters have been inducted. In addition, contracts concluded for procurement of 16 ALH MK III, 12 Dorniers, four P8I and eight Chetak Helicopters have been progressed. Further, AoNs have been accorded for 24 Multi Role Helicopters and 111 Naval Utility Helicopters.

4.52 ***MiG 29K/KUB:*** MiG 29K/KUB is a multirole, ship-based fighter aircraft designed for destroying aerial targets as well as surface ships and shore objects of the enemy. The aircraft has a high thrust-to-weight ratio, high maneuvering performance, modern avionics and weapons for air-to-air, air-to-ground and air-to-sea target engagement. All 45 contracted aircraft have been delivered.

MiG 29K

4.53 ***Project NAISS:*** Project NAISS (Naval Airfield Integrated Security System) was formulated as a maiden comprehensive case for upgradation/ implementation of security equipment/infrastructure of Naval Airfields. Contract for Project NAISS has been concluded in January 2019, which will greatly enhance security of Naval airfields.

4.54 ***'Garud' Microlight Aircraft Induction:*** 'Garud' the Pipistrel Virus SW 80 Microlight aircraft inducted into Indian Naval Air Squadron 550 on March 15, 2018 at a ceremony held at INS Garuda at Kochi. Induction of 'Garud' into the Navy is envisaged to play a pivotal role in enhancing Bird Survey capability, thus augmenting anti-bird hazard menace measures and promoting Flight Safety.

Important Events of Interest

4.55 ***Raksha Mantri Day at Sea:*** IN ships Vikramaditya, Kolkata, Kochi, Brahmaputra, Teg, Chennai, Trikand, Gomati, Deepak and Subhadra took part in RM's Day at sea. Vikramaditya embarked Raksha Mantri off Goa on January 8, 2018. The Raksha Mantri witnessed various naval operations during the deployment.

Raksha Mantri Day at Sea

4.56 ***Prime Minister's Shram Award:*** The scheme is implemented by Ministry of Labour & Employment for the Workmen in recognition of their outstanding contribution towards production and for showing exemplary zeal and enthusiasm in discharging of their duties. Out of twenty two awardees declared by Ministry of Labour and Employment for Public Sector, for the year 2016 (announced on January 25, 2018) five awards were awarded to Indian Naval Civilians, four for the prestigious 'Prime Minister's Shram Vir Award" and one for prestigious 'Prime Minister's Shram Shree Award".

4.57 ***MLAs/ MPs/ State Government Officials Day at Sea:*** In pursuance of the PM's directives, familiarisation sorties have been conducted for the states of West Bengal, Odisha, Andhra Pradesh, Tamil Nadu and Kerala. The aim of the event is to provide an overview of the coastal security architecture of India and to assist the senior leadership of the state to appreciate the threats and challenges that can come from the sea. MLAs/ MPs/ State Government officials Day at Sea for Maharashtra was conducted on April 8, 2018, off Mumbai. A total of 146 MPs/ MLAs/ State Government officials including the Chief Minister embarked five IN ships for the Day at Sea.

4.58 ***Visit of Prime Minister:*** The Prime Minister, during his Singapore tour, visited IN ship Satpura during the ship's Operational Turn Around at Singapore, on June 2, 2018.

Prime Minister onboard INS Satpura

4.59 ***International Yoga Day:*** IN joined the Prime Minister along with other fellow citizens and the International community across the globe in wholeheartedly celebrating the International Yoga Day. Maximum participation was observed at various locations conducting Yoga coordinated by units, Establishments and stations on June 21, 2018.

International Yoga Day

CHAPTER **5**

INDIAN AIR FORCE

5 INDIAN AIR FORCE

5.1 The IAF is pursuing a focused modernisation plan to transform into a strategic aerospace power with full spectrum capability. Continuous upgradation of the existing equipment and induction of new weapon platforms and systems have ensured that IAF continues to progress on the desired trajectory of modernisation. Future inductions of Rafale aircraft, Attack Helicopters, Heavy Lift Helicopters, Combat Support Elements, Surface-to-Air Guided Weapon (SAGW) and Air Defence Radars will bolster operational capability and capacity. The IAF is also strengthening its ability to undertake Network Centric Operations (NCO) by integrating all sensors, weapon systems and Command and Control structures.

5.2 The IAF is working to transit towards self-sufficiency by promoting 'Make in India' through focused, sustained and evolved Indigenisation Programmes. The IAF is committed to progressively reducing India's reliance on foreign manufactured defence equipment and to continue to strive in supporting country's 'Make in India' initiative.

FIGHTER PLATFORMS

5.3 ***BrahMos on Su-30MKI:*** Contract with BAPL to integrate BrahMos missile on Su-30 MKI aircraft has been signed. IAF coordinated with all stakeholders to integrate the weapon. The first successful release from the Su-30 MKI was undertaken in August 2016. Live firing of the combat missile against a sea based target was successfully carried out on November 22, 2017. Successful integration of the BrahMos missile on the Su-30 MKI has enhanced the strategic reach and combat potential of the aircraft.

Actual Picture of BrahMos Missile Suspended on a Su-30 MKI

5.4 ***Mirage-2000 Upgrade:*** The upgrade programme including a new, more powerful upgraded radar, complete revamp of old avionics suite and integration of newer and smarter weapons is being carried out. This would keep the aircraft operationally relevant for future combat operations. The upgrade is being undertaken in two phases. Initial Operation Clearance (IOC) Design and Development (D&D) was completed at OEM facilities' in France.

Mirage 2000 Upgrade in Air Defence Configuration

5.5 ***MiG-29 Upgrade:*** The MiG-29 upgraded aircraft is equipped with state of the art avionics, an array of smart air-to-air and air-to-ground weapons and are capable of in-flight refuelling, which would significantly increase its combat capability and radius of action.

Mig-29 Upgrade

5.6 ***Jaguar DARIN-III Upgrade:*** The upgrade of DARIN-I Jaguar aircraft to DARIN-III standards envisages integration of fire control radar, hybrid navigation system, engine and flight information system and air-data attitude and heading reference system. With this upgrade, the operational capability of the Jaguar aircraft in detecting air, surface and sea targets would enhance manifolds.

The Jaguar: Ready for Any Eventuality

5.7 The operational capability of the aircraft in terms of weapon carrying capability and mission reliability would improve due to higher available thrust and improved reliability. Currently, the case is being progressed with HAL as the lead integrator in the programme.

5.8 ***Rafale:*** Rafale aircraft will provide long range capability to engage targets in depth and will provide a strong weapons and systems capability edge over our adversaries. The Rafale aircraft will provide IAF the strategic deterrence and requisite capability cum technological edge. The training of first batch of Officers and technicians is underway with the French Air Force.

Rafale Aircraft

5.9 ***Light Combat Aircraft (LCA):*** LCA has been developed by Aeronautical Development Agency (ADA) and produced by Hindustan Aeronautics Ltd (HAL). Two contracts for procurement of 40 LCA were signed with HAL in 2006 and 2010 respectively. The first LCA squadron was formed on July 1, 2016. Till May 2019, fourteen (14) LCAs have been delivered to the IAF in the IOC configuration. The activities for FOC are in full swing. Recently, LCA undertook air-to-air refuelling trials, which will enhance its endurance and radius of action. Further integration of other weapons is in progress.

LCA (Air to Air Refuelling)

TRANSPORT PLATFORMS

5.10 ***C-17 GLOBEMASTER III:*** The Boeing manufactured C-17 aircraft is a heavy lift military cargo aircraft capable of conveying combat units along with their equipment up to a distance of 4,200 kms, with a maximum payload of 70 tonnes and approximately 9,000 kms with a payload of 40 tonnes in a single hop. The long range and capability to operate from high altitude airfields in hot conditions ensures reduction in the effective deployment time and all terrain operations, thereby enabling efficient movement of combat units within India and abroad.

C-17 Globe master Airborne for a Long Haul Mission

5.11 ***Hercules C-130J-30:*** The C-130J is a medium sized, all weather transport aircraft capable of inter theatre and intra theatre airlift operations. It is capable of delivering combat troops/personnel or cargo by airdrop or air-landed operations. IAF has also enhanced the operational capability of the aircraft by procuring latest generation Night Vision Goggles to be used by the aircraft crew.

C-130J Aircraft in IAF Colours

HELICOPTER PLATFORMS

5.12 ***Mi-17 V5 Helicopters:*** Mi-17 V5 helicopters have been inducted. The helicopter is specially designed to meet the operational requirement of IAF, with glass cockpit, advanced avionics, weather radar, auto pilot and powerful aero engines for high altitude operations. It has been extensively exploited for transportation, troop induction, search & rescue, medical evacuation

and fire fighting. The glass cockpit of MI-17 V5 helicopter is adapted for the usage of Night Vision Goggles (NVG), which enables the IAF to conduct its operations unhindered even during low visibility and dark night conditions.

Mi-17 V5: 'Backbone of the Helicopter Fleet' Taking Part in SHBO

5.13 ***Apache AH-64 Attack Helicopter:*** The procurement of Attack Helicopters is progressing as scheduled and the delivery is planned in 2019. The training of pilots and technicians has commenced in USA. The training will continue in batches.

Apache AH-64 Operating from an Undisclosed Location

5.14 ***Chinook Heavy Lift Helicopters:*** A total of 15 Chinook Heavy Lift Helicopters are being delivered to the IAF from March 2019 onwards. A team of aircrew and ground crew have commenced training in USA.

Heavy Lift Helicopter

MISCELLANEOUS PLATFORMS

5.15 ***Restoration of Vintage Flight:*** IAF maintains and operates vintage aircraft of World War-II era. These aircraft represent an important part of Indian aviation and IAF heritage. In 2008, after undertaking detailed survey of expertise available across the globe on restoration of vintage aircraft and spares support, a decision was taken to restore these aircraft with assistance from vendors within and outside the country. The restoration was undertaken in a phased manner to ensure adequate safety and training of manpower on operations and maintenance of the vintage aircraft.

5.16 One Tiger moth and one Harvard aircraft were sent to UK for restoration. Both these aircraft have since been received and are presently operating in IAF colours. Both aircrafts have regaled audiences all over the country as they have been an integral part of flypasts and air displays of National importance. Their presence over Indian skies serves to remind Indian Citizens of our rich aviation heritage and motivates countless youngsters to become a part of the IAF.

5.17 The Dakota DC-3 VP 905, was formally accepted by the Chief of Air Staff on behalf of the IAF on February 13, 2018. The aircraft was then ferried in from the UK on April 17, 2018. The aircraft flew a total of 9750 km to reach India and transited through seven countries. The aircraft was formally inducted into the IAF on May 4, 2018 at AF Station Hindon. The aircraft flew during the Air Force Day parade at Air Force Station Hindon, on October 8, 2018.

5.18 ***UAV Upgrade:*** A combined case for upgrade of Heron UAV systems for three Services (IAF-10) is in progress and IAF is the lead service.

Weapons and Associated Avionics

5.19 ***New Developments and Innovations:*** Trials are underway to integrate Surface to Air weapon systems with IACCS. Integration of IACCS, the ground network with the airborne network through Software Defined Radio (SDR) is planned to facilitate Net Centric Operations. Integration of IACCS with Surveillance Network of Civil Aviation is also planned to be executed in a phased manner.

MAKE PROJECTS

5.20 ***AEW&C (Indigenous):*** For the Airborne Early Warning and Control (AEW&C) Project, Centre for Airborne Systems (CABS) was designated as nodal agency to indigenously design and develop operational AEW&C systems for IAF and engineering prototype. The AEW&C is a system of systems consisting of Primary Radar (PR), Secondary Surveillance Radar (SSR), Electronic Support Measures (ESM), Communication Support Measures (CSM), Self-Protection Suits (SPS), Mission Communication System (MCS) and Data Links on board Embraer-145 aircraft. The aircraft is capable of Air-to-Air refuelling for facilitating extended operations.

5.21 The AEW&C is to be employed in support of Air Defence and offensive strike missions over the tactical battle area. Presently, one AEW&C aircraft has been inducted in IAF in September 2018. The second aircraft is likely to be inducted in near future.

AEW&C (Indigenous)

5.22 ***Smart Anti Airfield Weapon (SAAW):*** Smart Anti Airfield Weapon is being developed by DRDO for integration on fighter aircraft. Release trials to evaluate the performance of the weapon have been successful.

Smart Anti Airfield Weapon (SAAW)

5.23 ***S-400:*** The contract for supply of five Firing Units of S-400 was signed between Russia and India on October 5, 2018. This extremely capable Long Range Area Defence Weapon networked with the Integrated Air Command and Control System of IAF would enhance capability to engage hostile targets. With the procurement of this system, IAF will significantly bolster its air defence capability.

S-400

5.24 ***Spyder LLQRM System:*** IAF has procured SPYDER LLQRM Systems from Israel. The system is equipped with Python 5 and Derby missiles. It is an excellent Low Level Quick Reaction Surface-to-Air Missile system to provide air defence against aircraft, helicopters, cruise missiles and UAVs. The system is capable of destroying targets with extremely low Radar Sections, in a dense jamming environment.

Spyder LLQRM System

5.25 ***ARUDHRA RADAR (MPR):*** IAF is procuring Medium Power Radars (Arudhra) under 'Make' category. These radars are first Medium Power Active Phased Array Radar designed and developed by Electronics and Radar Development Establishment (LRDE), DRDO. M/s BEL has been nominated as Production Agency. The User trials were successfully completed in June 8, 2017. Presently the Project is at RFP stage.

5.26 ***ASHWINI (LLTR):*** IAF is inducting Low Level Transportable Radars (Ashwini) under 'Make' category. Ashwini is a rotating Active Phased Array Radar using Solid State Technology designed and developed by LRDE, DRDO. M/s BEL has been nominated as Production Agency. The performance of Proto radar was verified during User Trials by undertaking dedicated ac sorties in December 2017. Post validation of air transportability of radar, User Trials would be concluded.

5.27 ***IACCS:*** A contract for IACCS node in WAC and SWAC AOR was signed with M/s BEL on September 9, 2007 and all IACCS nodes are under operational utilisation since February 2013. For Pan-India coverage, contract for CAC, EAC and SAC AOR was signed with M/s BEL, on October 1, 2015. The IACCS is fully indigenous project which will integrate all sensors (including Civilian radars) to give composite Air Situation Picture for quick decision making.

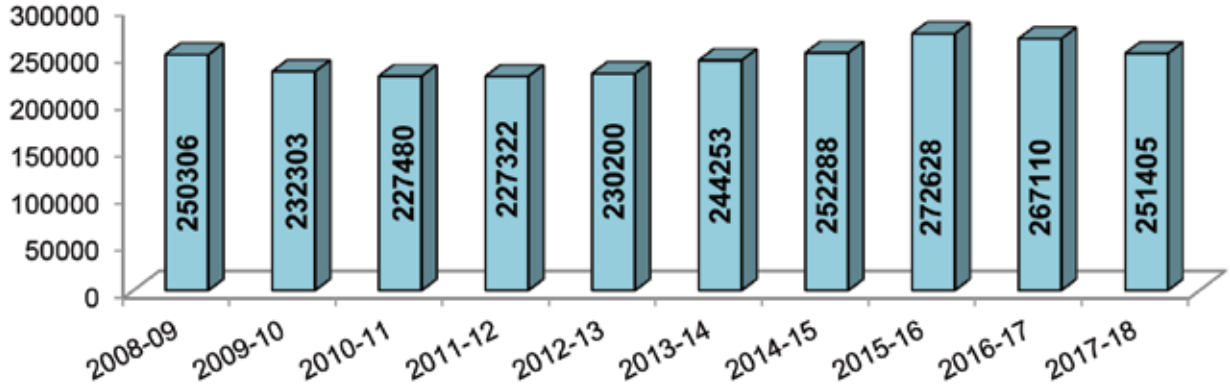
5.28 ***Development of Operational Wing at Deesa:*** IAF is developing an airfield and forming an operational Wing at Deesa, with necessary infrastructure for basing combat Sqns, to meet future challenges. GoI sanction for the same was accorded on March 23, 2018.

5.29 ***Aerospace Safety:*** The Aerospace Safety record of the Indian Air Force (IAF), through the past decade, has improved as a result of various steps taken by the IAF and the Government.

5.30 ***Aircraft Accident Rates:*** The annual aircraft accident rates, calculated as number of Cat I accidents per 10,000 hours of flying have shown a progressive decline over the years.

5.32 ***Flying Effort:*** There has been an increase in the flying effort on one hand and reduced accident rate on the other. This indicates that the safety measures taken by the IAF are in the right direction. The reduced accidents, with a comparative increase in flying, directly contributes to enhanced operational capability. Financial

year wise flying efforts by IAF for the past ten financial years are depicted below:



Indigenisation

5.32 ***Indigenisation of Maintenance Spares:*** As part of the Government's 'Make-in-India' initiative, substantial progress has been made in indigenisation drive of IAF towards development and manufacturing of maintenance spares for various systems procured from foreign OEMs. During the last financial year, more than 1300 spares have been indigenously developed.

5.33 ***Setting Up of Nodal Technology Centers:*** IAF has created 13 Nodal Technology Centre (NTC), each specialising in a niche area. Each NTC coordinates with designated academic institutions and major DRDO/ CSIR labs. These centers, established at BRDs, are pursuing various major projects essentially aimed towards enhancing maintenance support through Indian industries for the critical IAF systems.

5.34 ***Innovations:*** Innovations at Base Repair Depots and operating units have helped in finding solutions to problems for want of some critical spares and TTGE, thus saving precious time and enable us to surmount the challenges posed by obsolescence. Display of 14 innovations was conducted during Air Force Day on October 8, 2018 and Certificate of Excellence was awarded.

e - Maintenance Management System

5.35 Indian Air Force has embarked on digitizing/ automating maintenance documentation and management through 'Project e-Maintenance Management System'. The project is one of the largest and most complex implementation of "Enterprise Asset Management System" at 170 IAF bases. It would help IAF to transform from paper based maintenance documentation system to an online Maintenance Management system, in line with "Digital India"theme.

5.36 e-MMS is a web based application designed to cover all maintenance activities and decision making process. It rides over AFNET infrastructure and has centralized architecture. It will enhance effectiveness of management decisions by capturing data at the source and providing tools for analysis of this data realistically.

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CHAPTER 6

INDIAN COAST GUARD

6 INDIAN COAST GUARD

6.1 Indian Coast Guard (ICG) came into existence on February 1, 1977 with two frigates and five patrol boats transferred from the Indian Navy and was formally instituted on August 19, 1978. Since its inception, the service has acquired a wide range of capabilities, both surface and airborne, to undertake the assigned tasks during peace time and to supplement the efforts of the Indian Navy.

6.2 ***Organisation:*** The Command and Control of Coast Guard organisation lies with the Director General Indian Coast Guard (DG, ICG), New Delhi. The organization has 5 Regional Headquarters located at Gandhinagar, Mumbai, Chennai, Kolkata and Port Blair which have been further sub-divided into 16 Coast Guard Districts HQs covering the entire coastline of India. There are 42 Coast Guard Stations, 10 Coast Guard Air Stations and Air Enclave for undertaking effective deployment of ships and airborne operations.

6.3 ***Duties and Functions:*** The duties and functions of Indian Coast Guard are as follows:

(a) Ensuring the safety and protection of the artificial islands, offshore terminals, installation and other structures and devices in any maritime zone.

(b) Provide protection to the fishermen including assistance to them at sea while in distress.

(c) Taking such measures as are necessary to preserve and protect the Marine Environment and to prevent and control marine pollution.

(d) Assisting the Customs and other authorities in Anti-Smuggling Operations.

(e) Enforcing the provision of such enactments as are for the time being in force in the maritime zones; and

(f) Such other matter, including measures for the safety of life and property at sea and collection of scientific data, as may be prescribed.

6.4 During the Course of time, Indian Coast Guard has been assigned the additional duties of enforcement, monitoring and surveillance of Deep Sea Fishing, Search and Rescue for mariners and Marine oil-spill response measures. ICG also provides coastal security in territorial waters in coordination with central and state agencies and it is the Lead Intelligence Agency for coastal and sea borders.

6.5 ***Existing Force Level:*** At present, Indian Coast Guard is equipped with 62 ships, 61 Interceptor Boats, 18 hovercrafts and63 aircrafts.

Coastal Security

6.6 ***Extended Exclusive Economic Zone (EEZ) Surveillance:*** In addition to undertaking maritime surveillance in Maritime Zone of India, ICG ships and aircraft are also deployed for undertaking maritime surveillance of littoral states. In 2018, ICG undertook three extended EEZ deployments in the Maldivian EEZ.

6.7 ***Coastal Security Exercises:*** Since 2009, a total of 185 Coastal Security Exerciseshave been conducted

by Indian Coast Guard, in coordination with Indian Navy, for ensuring effective coordinated patrolling and validating of Standard Operating Procedure. Exercise 'Taiyaar-19' was conducted on January 28-29, 2019 to test and revalidate the transition phase from peacetime to hostilities and multiple activities towards preparation for hostilities during precautionary stage were simulated.

6.8 ***Coastal Security Operations:*** A total of 369 Coastal Security Operations and 2,02,710 Boarding Operations have been conducted since 2009, in coordination with all stakeholders. A total of 45,736 boarding operations were carried out by ICG ships in 2018.

6.9 ***Community Interaction Programmes:*** Since 2009, a total of 7176 Community Interaction Programmes have been conducted by ICG to sensitize fishermen on safety and security issues and to create awareness about usage of lifesaving equipments like Distress Alert Transmitters, lifebuoys and life jackets etc.

Community Interaction

6.10 With a view to have professional skills, so far, 4584 Marine Police Personnel have been trained by the Indian Coast Guard.

Significant Milestones and Achievements

6.11 Two Offshore Patrol Vessels, 1 Fast Patrol Vessel, 8 Interceptor Boats and 1 ALH Mk-III 'Green' aircraft have been inducted in ICG during the period 2018-19.

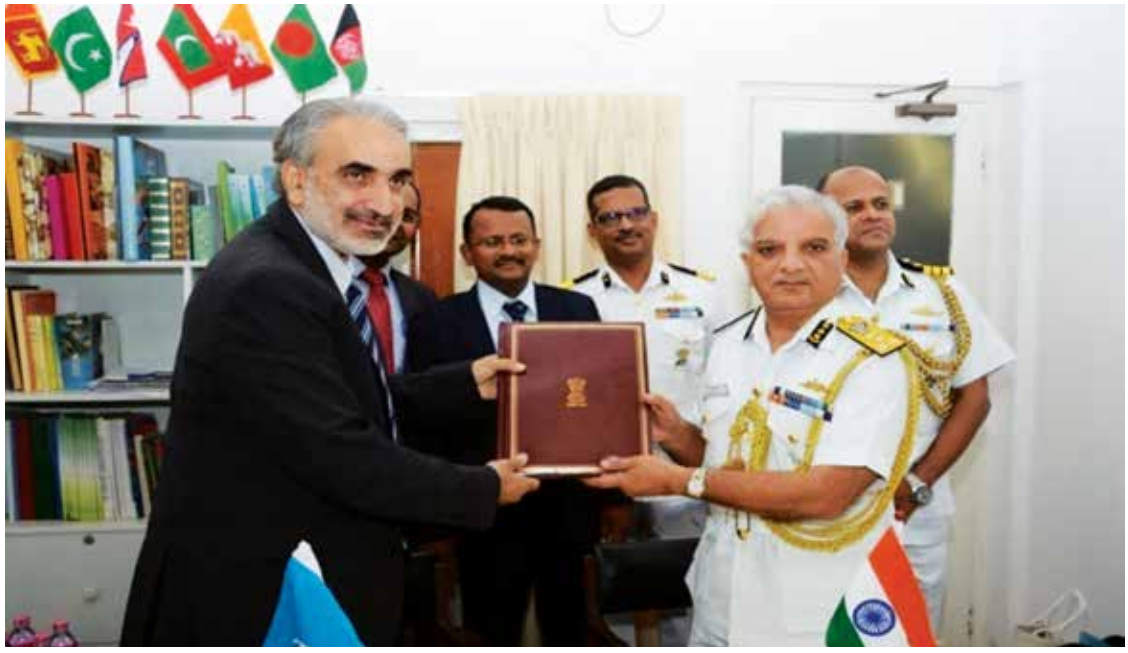
6.12 Two Coast Guard Afloat Support Units (CASUs) at New Mangalore and Goa, 2 Coast Guard District Headquarters at Okha and Tuticorin and 1 Pollution Response Team at Vadinar have been activated in 2018-19.

Pollution control exercise

International Cooperation

6.13 ***Memorandum of Understanding (MoUs):*** A Memorandum of Understanding (MoU) between the Coast Guard of the Republic of India and the Coast Guard of the Democratic Socialist Republic of Sri Lanka was signed on May 9, 2018 in Colombo for the establishment of a collaborative relationship to combat transnational illegal activities at sea and develop regional cooperation between the Indian Coast Guard and Sri Lanka Coast Guard.

6.14 ***Signing of Memorandum of Understanding (MoU) for Cooperation on the response to Oil and Chemical Pollution in the South Asian Seas Region:*** Government of India deposited instrument of consent to South Asia Cooperative Environment Programme (SACEP), Colombo, Sri Lanka on May 12, 18 in respect of 'Memorandum of Understanding (MoU)' for cooperation on response to oil and chemical pollution in the South Asian Seas Region (comprising of maritime nations – India, Bangladesh, Maldives, Pakistan and Sri Lanka).



Signing of MoU for Cooperation on the response to Oil and Chemical Pollution in the South Asian Seas Region

Bilateral Interactions

6.15 ***Visit of Foreign ships to India***

Sl. No.	Ship	Duration (place)	Remarks
1	Tsugaru, Japan Coast Guard	January 16-17, 2018 (Chennai)	ICG-JCG annual joint exercise
2	Badaro, Korea Coast Guard Ship	April 5, 2018 (Chennai)	6th ICG-KCG joint exercise
3	Tajuddin, Bangladesh Coast Guard	May 25-28, 2018 (Chennai) May 30 to June 2, 2018 (Vizag)	Professional interaction and exercises with ICG under the provisions of MoU
4	CSB 8001, Vietnam Coast Guard	October 1-6, 2018 (Chennai)	Professional interaction and first ICG-VCG joint exercise

6.16 ***Training of Foreign Personnel:*** During 2018-19 Indian Coast Guard have trained 25 foreign officers and 34 sailors under the Course on 'Maritime and Law Operations'.

6.17 ***Gifting of Interceptor Boats to Government of Mozambique:*** On a proposal two Interceptor Boats C-442 & C-443 have been gifted to Government of Mozambique.

6.18 ***High Level Meetings***

Sl. No.	Host	Participant	Remarks
1	Indian Coast Guard	Japan Coast Guard	Annual High Level Meeting on January 15-17, 2018
2	Indian Coast Guard, Delhi & Chennai	Korea Coast Guard, South Korea	High level meeting and Joint exercise on April 1-6, 2018
3	Indian Coast Guard	Pakistan Maritime Security Agency	High Level Meeting on May 27 – 30, 2018
4	Indian Coast Guard, Kolkata	Bangladesh Coast Guard	2nd Table Top Exercise between ICG-BCG on July 26-27, 2018
5	Indian Coast Guard, Delhi	Bangladesh Coast Guard	Annual High Level meeting on August 26-30, 2018
6	Indian Coast Guard	Vietnam Coast Guard	Annual High Level meeting on October 1-4, 2018
7	Sri Lanka Coast Guard	Indian Coast Guard	Signing of MoU between SLCG-ICG on May 9-11, 2018
8	Korea Coast Guard	Indian Coast Guard	Participated in Multi-Mission Multi-lateral exercise (MMEX)-2018 on June 5-7, 2018.
9	Israel Navy	Indian Coast Guard	Meeting held on July 8-12, 2018 to explore the possibilities for cooperation in the domain of coastal security.
10	Royal Oman Police Coast Guard	Indian Coast Guard	2nd High Level Meeting on August 6-8, 2018
11	Dhaka, Bangladesh	Indian Coast Guard	14th HACGAM forum held on October 23-27, 2018
12	Shanghai, China	Indian Coast Guard	Participated in East Asia Summit Workshop on Maritime Search & Rescue on October 25-26, 2018
13	Indian Coast Guard, Delhi	Indonesia Maritime security Agency	High Level Meeting held on December 16-19, 2018
14	Japan Coast Guard	Indian Coast Guard	18th High Level Meeting and joint exercise between ICG-JCG held on January 21-25, 2019
15	London, United Kingdom	Indian Coast Guard	Participated in the 6th meeting of Navigation, Communication and Search and Rescue (NCSR) on January 9-18, 2019.
16	Republic of Korea	Indian Coast Guard	Participated in the ICG-KCG Working Level Meeting February 6-10, 2019.
17	Saudi Arabia	Indian Coast Guard	Participated in Regional training in combating security in Maritime domain on March 10-28, 2019.

Sl. No.	Host	Participant	Remarks
18	Singapore	Indian Coast Guard	Attended 13th GCM of ReCAAP on March 19-22, 2019
19	Republic of Korea	Indian Coast Guard	High Level Meeting between ICG-KCG held on March 24-28, 2019
20	Malaysia	Indian Coast Guard	Participated in Langkawi International Maritime and Aerospace Exhibition- 2019 on March 26-30, 2019.

6.19 ***Overseas Deployment of ICG Ship to Foreign Ports:*** Indian Coast Guard Ships are being deployed overseas from time to time to interact with foreign Coast Guards' and other Maritime Agencies in the region. A total of 12 ICG ships visited 27 foreign countries in 2018-19.

6.20 ***India, Maldives, Sri Lanka Trilateral Exercise DOSTI:*** India, Maldives, Sri Lanka trilateral exercise DOSTI-XIV was conducted at Male, Maldives during November 25-29, 2018.

Search & Rescue

6.21 The XVII National Maritime Search and Rescue (NMSARB) Meeting was held at Vigyan Bhawan Annexe, New Delhi on July 5, 2018. During the meeting, annual NMSAR awards were distributed for saving and rescuing lives in sea.

6.22 ***Distress Beacon Exercise:*** Active participation was witnessed from Defence and Civil agencies in the 14th and 15th Beacon exercises conducted in 2018.

6.23 ***Search and Rescue (SAR) Exercises***

(a) National Maritime Search and Rescue Workshop & Exercise (SAREX-18) was conducted off Chennai on January 16-17, 2018.

(b) With a view to reinforce the operational linkages with leading Maritime SAR service providers in the Indian Ocean Region, Indian Coast Guard conducted Search and Rescue Communication Exercises (SARCOMEX) with following 12 countries in 2018-19:

(i) Oman
(ii) Thailand
(iii) Bangladesh
(iv) Indonesia
(v) Malaysia
(vi) Qatar
(vii) South Korea
(viii) Vietnam
(ix) Philippines
(x) Sri Lanka
(xi) Myanmar
(xii) Australia

6.24 ***Maritime SAR Workshop & Interactive Sessions:*** Under the aegis of NMSAR (National Maritime Search & rescue) Board, ICG conducted Maritime SAR Workshop & interactive session for mariners, fishermen and other stake holders at Thiruvananthapuram, Kolkata, Mumbai, Port Blair. In addition, a series of Special Search and Rescue Workshops for fishermen and Stakeholders have also been conducted in seven Coastal States.

6.25 The 7th National Level Pollution Response Exercise (NATPOLREX-VII) was conducted by Indian Coast Guard on January 7-9, 2019 at Mumbai. During the exercise 24 foreign delegates from 19 countries and 75 delegates from Central and State departments participated in the exercise.

Some Rescue Operations

6.26 ICGS Dahanuon January 13, 2018 rescued 34 school children from a capsized private boat off

Parnaka Beach (Dahanu, Maharashtra) using local fishing boats.

6.27 ICGS Samudra Pavakduring January 17-18, 2018 gave firefighting assistance to extinguish fire onboard MT Genessa (Flag- India) off Kandla Port.

6.28 On March 6, 2018, ICG received relayed message regarding fire onboard container carrier MV Maersk Honam West of Agatti Island. MV ALS Ceres reported and rescued 23 out of 27 crew from life boats and departed area with the rescued crew. After initial fire and damage assessment of the container vessel, the fire fighting operation was commenced.

6.29 ICGS Shoor on June 13, 2018, rescued all seven crew from a stranded vessel 'Jalarag' which was drifting off Porbandar due to total power failure.

6.30 Coast Guard ship Rajkiranon June 14, 2018, rescued 22 crew from MV SSL Kolkata South of Sagar Island which had caught fire onboard in its containers.

Fire fighting

6.31 ICGS Rani Durgavati, on June 22, 2018, rescued three fishermen from the toppled vallums and provided first aid. The remaining two fishermen were retrieved from the mother boat.

6.32 On January 25, 2019, ICGS C-439 rescued 7 crew onboard from sinking vessel MSV Amar Jyoti off Prongs Lt.

6.33 On January 21, 2019, ICGS Karwar with coordinated efforts from Indian Navy, local fishermen and Coastal Security Police teams rescued 19 survivors out of 35 tourists from a capsized boat off Kurmagadgudda Island. Bodies of remaining 16 crew were also recovered.

6.34 ICGS Vikram and ICGS Sujay on March 16, 2019, successfully undertook firefighting and de-flooding operation onboard Research Vessel 'ORV Sagar Sampada' off New Mangalore with 36 Crew and 16 Scientists were ascertained safe.

Medical Evacuation

6.35 On January 4, 2018, ICGS Aruna Asaf Ali evacuated a 40 years old Philipino crew who had a deep cut on left forearm while working onboard MV 'Zealand Almere' (Flag - Netherlands). The patient was administered first-aid enroute by ship's Medical staff and brought to Campbell Bay on January 4, 2018 for onward transfer to Port Blair by Indian Air Force aircraft.

6.36 ICGS Raziya Sultana, on February 3, 2018, safely evacuated an injured Chinese national in critical condition from MV Yanduanjino-I (Flag - Panama). He was kept under medical observation throughout the night onboard ICGS Raziya Sultana and was later handed over to the local agent at Haldia.

6.37 ICGS Samudra Prahari, on February 25, 2018 safely evacuated a fisherman from fishing boat 'Pavitra Traikya' suffering from paralytic attack.

Medical Assistance by ICGS Samudra Pavak off Mumbai

6.38 ICG Dornier on January 29, 2019, evacuated two critically injured Navy personnel from Campbell Bay to Port Blair.

6.39 ICGS C-158, on March 21, 2019, evacuated one passenger having Cardiac arrest/Heart blockage onboard 'MV Queen Mary-2' and was safely handed over to the Shipping agent at Mormugoa for further medical management.

6.40 ***Achievements of Indian Coast Guard***

S. No.	Achievements during the period January, 2018 to March, 2019	
(a)	Search and Rescue (SAR) Mission	253
(b)	Search and Rescue (SAR) Sortie	368
(c)	Lives Saved at Sea	801
(d)	Medical Evacuation at Sea	45
(e)	Poaching Trawler Apprehension	10 Boats, 53 Crew
(f)	Repatriation of fishermen	174 Indian Fishermen from Sri Lanka 11 Sri Lankan fishermen from India 26 Pakistani fishermen from India

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CHAPTER 7

DEFENCE PRODUCTION

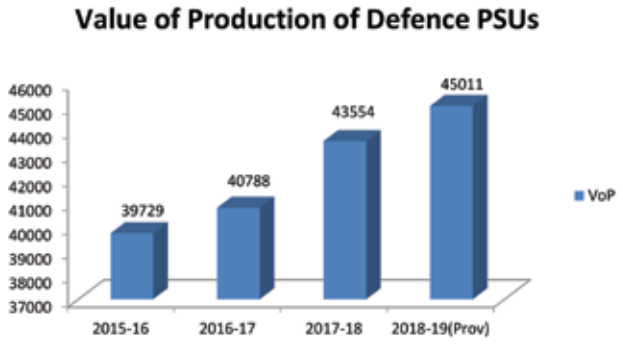
7 DEFENCE PRODUCTION

7.1 The Department of Defence Production (DDP) was set up in November 1962 with the objective of developing a comprehensive production infrastructure to produce the weapons/systems/platforms/equipment required for defence. Over the years, the Department has established wide ranging production facilities for various defence equipment through the Ordnance Factories, Defence Public Sector Undertakings (DPSUs) and private defence industry. The products being manufactured by these units include arms and ammunition, tanks, armoured vehicles, heavy vehicles, fighter aircraft and helicopters, warships, submarines, missiles, ammunition, electronic equipment, earth moving equipment, special alloys and special purpose steels. Department also recognizes that true self-reliance is only possible when the technology is also with the country. Therefore, the Department has been encouraging promotion of innovation and Intellectual Property creation in the defence industry ecosystem of the country.

7.2 As a result of the efforts taken to develop defence production ecosystem, the country has achieved capability in wide range of defence and aerospace. As far as land systems are concerned, these include Artillery guns, tanks, various types of heavy vehicles, mine protected vehicles, various kinds of small arms, armoured material including bullet proof jackets and helmets, wide range of ammunition, propellants and explosives, etc. As regards aero-systems, fourth generation fighter aircrafts, helicopters of 3-5.5 tonne class, trainer aircrafts, missiles of several types, and as regards naval systems are concerned, capability to manufacture practically all type of naval vessels including offshore patrol vessels, corvettes, frigates, destoyers, aircraft carriers, submarines etc. has been created in the country.

7.3 ***Growth in Value of Production by Defence PSUs:*** With the objective of achieving self-reliance in defence and making India a global hub in defence manufacturing, the defence industry ecosystem has enhanced, their capabilities upgraded and product range widened. A number of major products have been developed through research and development initiatives in addition to a number of products and equipment being produced through transfer of technology. As a result of these efforts, increase in Value of Production (VoP) of Defence PSUs is indicated in the following figures:

(₹ in crore)



Although, figures of value of production are not readily available, as several industries are in delicensed category, similar growth in value of production is also projected for private industry. Ordnance Factories have shown slight decline in the value of production as 275

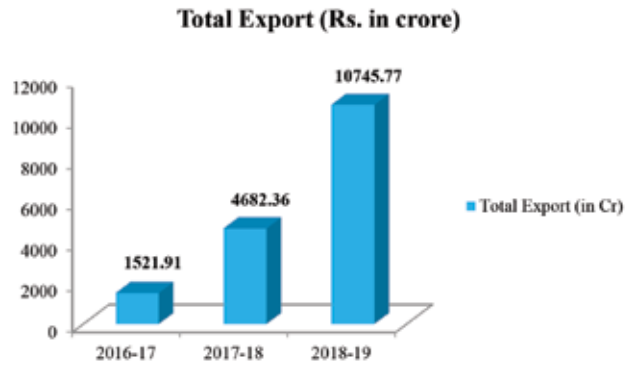
items earlier reserved for Ordnance factories have been notified for open industry procurement.

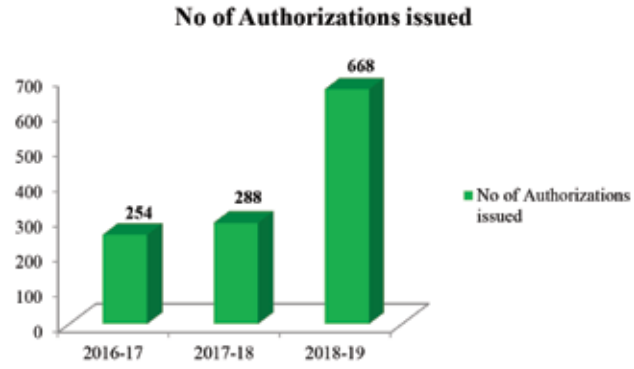
Several Defence PSUs have recorded their highest-ever turnover during 2018-19. Details in this regard are as follows:

Defence PSU	Turnover during 2018-19
HAL	₹ 19705 crore
BEL	₹ 11780 crore
MDL	₹ 4550 crore
BEML	₹ 3450 crore

7.4 ***Vision 2022-23 for Defence PSUs:*** In order to redefine the role and functioning of CPSEs in the context of Vision-2022, Department of Public Enterprises organized CPSE Conclave on April 9, 2018. Prime Minister had posed five specific challenges to the CPSEs and directed all the CPSEs to prepare action plans to achieve the targets emanating from recommendations of CPSE Conclave. In follow up of first challenge, i.e. Maximizing Geo-Strategic reach of Defence Public Sector Undertakings (DPSUs), it is proposed that 25% of Annual Turnover of respective DPSUs should be from Export by 2022-23 so that India becomes a significant exporter instead of being a mere importer. The second challenge which the DPSUs have to achieve relates to reduction in their import dependence for components and parts used by them in production of various platforms and equipment. Import substitution amounting to ₹ 15,000 crore by 2022-23 through indigenization of products/process is targeted as part of this effort. With regard to developing capability and capacity in latest technologies, the third challenge is that the DPSUs have been asked to develop a roadmap for developing Artificial Intelligence based technologies for their platforms/equipment and implement the same.

7.5 ***Defence Exports:*** Over one dozen reforms / steps taken during 2018-19 which have provided a big boost to defence exports in the country. As a result, the authorisations for defence exports in the country have seen quantum jump in the last two years. The defence export authorizations have touched ₹ 10,745 crore during 2018-19, a growth of over 100% over 2017-18 when the authorizations were ₹ 4,682 crore and over 800% since 2016-17 when the defence authorizations were ₹ 1521 crore.





Further, due to several measures to enhance ease of doing business in exports by refrming export permission processes and developing a completely end-to-end online portal for receiving and processing authorization permissions, the time taken for authorization has reduced to less than 50% of time taken in 2017-18.

New export offices have been opened by Defence PSU, BEL. BEL opened an Export Office in Hanoi, Vietnam, on June 13, 2018 and another Export office in

Myanmar. This exponential growth is a notable success of "Make in India in defence" and gives confidence that the country is moving towards becoming a net exporter of defence equipment / platforms after being one of world's biggest importers of defence equipment for decades.

Some of the policy initiatives reforms/steps taken in this regard are mentioned as below:

(a) Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET) Category 6 titled "Munitions List" that was hitherto "Reserved" has been populated and Military Stores list notified vide Notification No.115(RE-2013)/2009-2014 dated March 13, 2015 stands rescinded.

(b) The Standard Operating Procedure (SOP) for issue of Export Authorisation for export of Munitions List has been revised and published on the website. Consultation process has been done away with in repeat orders of same product to the same entity and export of items for exhibition purposes. Legitimate export of the parts and components of small arms and body armour for civil use being permitted in consultation with MEA, Powers have been delegated to DRDO, DGOF, and CMD's of DPSUs for exploring export opportunities and participation in global tenders. In Intra-Company business the requirement of getting End User Certificate (EUC) from the Government of importing country has been done away with and 'Buying' Company is authorized to issue the EUC and a new provision for importing and re-exporting parts and components for undertaking repair or rework to provide replacement for a component under warranty obligation is inserted in the SOP as a sub-classification of repeat orders.

(c) The existing online application system of export authorisation made more user friendly. New Online system for processing of export authorization applications launched. The entire process made paper less right from filing of application by the industry to issue to export authorisation, including consultation with stakeholders.

(d) MHA vide Notification dated November 1, 2018 delegated its powers to Department of Defence Production for issue of export license under Arms Rules 2016 in Form X-A, for parts & components of small arms to ensure that Department of Defence Production remains a single point of contact for exporters.

(e) Scheme for Promotion of Defence Exports notified to provide an opportunity to the prospective exporters an option to get their product certified by the Government and access to the testing infrastructure of Ministry of Defence for initial validation of the product and its subsequent field trials. The certificate can be produced by the prospective exporter for marketing their products suitably in the global market. Standard Operating Procedure for implementation of the scheme has been notified and published on the website.

7.6 ***Export Promotion Cell:*** This cell is formed to co-ordinate and follow-up on export related action including enquiries received from various countries and facilitate private sector and public sector companies for export promotion. DPSUs & OFB have been directed to have at least 25 percent as export target from out of their total sales. Defence Attaches have also been mandated to provide support for defence export promotion. An Export Booklet has also been published in which products of DPSUs /OFB and private companies dealing in manufacturing of defence products have been included.

Seminars for MSMEs were organized in association with Industry associations (SIDM-CII, Bharat Shakti, Bharat Chamber of Commerce, PHD Chamber of Commerce & Industry) at Nasik, Belgaum, Pune, Nagpur, Kolkata and Delhi to bring the MSME's in the defence ecosystem in order to promote Export of Defence products.

7.7 ***Defence Industrial Corridors:*** Finance Minister in his Budget Speech on February 1, 2018 announced setting up of two Defence Corridors in the Country. Consequently, it has been decided to develop one such corridor in Uttar Pradesh and the other one in Tamil Nadu. While not restricting the growth of defence industry in any location, the five nodal points in Tamil Nadu and six nodal points in Uttar Pradesh with potential to develop defence industries in the corridor are indicated below.

(a) ***Uttar Pradesh:*** Agra, Aligarh, Chitrakoot, Jhansi, Kanpur and Lucknow.

(b) ***Tamil Nadu:*** Chennai, Coimbatore, Hosur, Salem, and Tiruchirappalli.

To elicit the views of the stake-holders in the vicinity of these areas, five Industry Interactions in Uttar Pradesh and six industry interactions in Tamil Nadu were organized.

Based on these consultations, on August 11, 2018, investments of over ₹ 3700 crore were announced for UP Corridor in an event held in Aligarh. In a similar event held in Trichurapalli, Tamil Nadu on January 20, 2019, investments of over ₹ 3100 crore were announced for Tamil Nadu Defence corridor. A Committee under chairmanship of Additional Secretary, DDP has been formed to monitor the implementation of these projects announced for the two corridors.

Additionally, a Joint Venture between OFB and Concern Kalashnikov, Russia along with Rosonboron Export (ROE), Russia has also been approved in Korwa, UP for manufacture of AK-203 rifles and is expected to bolster the UP corridor.

Similarly, Defence Innovation Hub has been approved for Coimbatore, Tamil Nadu and is being developed with Coimbatore District Small Industries Association (CODISSIA) and is expected to provide a boost to Tamil Nadu Defence Industrial corridor.

7.8 ***Creating a Startup Ecosystem for Defence and Aerospace:*** Innovations for Defence Excellence (iDEX) is a scheme formulated in collaboration with Startup India and Atal Innovation Mission, with the objective of bringing Start-ups to innovate, develop technology and solve problems related to defence and aerospace. iDEX, a first initiative of its kind in the country, was launched by the Prime Minister on April 12, 2018. iDEX is aimed at creation of an ecosystem to foster innovation and technology development in Defence and Aerospace by engaging Industries including MSMEs, Start-ups, Individual Innovators, R&D institutes and Academia and provide them grants/ funding and other support to carry out R&D. It is expected that India can take advantage of its vibrant startup ecosystem to develop technologies related to defence and aerospace.

Under the iDEX scheme, Defence India Startup Challenges (DISCs) are being organized. DISC comprises of real-life problems statements identified by Indian forces/ Defence PSUs/OFB and thrown to the Startups to respond. In the very first year of its existence, iDEX has organized two rounds of DISC challenges. DISC-1, organized in August 2018, comprised of 11 challenges. DISC-2 organized in January 2019 involved 4 challenges. Working through partner incubators, iDEX has been able to galvanize a big startup community to take interest in problems floated under DISC challenges. Over 600 responses have been received for the problems offered under DISC. The status of DISC responses relating to the three Services are as follows:

Service	No. of Challenges	No. of Startups responses
Indian Army	4	159
Indian Air Force	5	222
Indian Navy	4	173
HAL	2	82
Total	15	636

Under the iDEX scheme, a maximum of ₹ 1.5 crore funding is available to a participant for development of a prototype based on a collegiate led by respective Service. The selection is competitive and financial amount is released based on achievement of certain milestones. The scheme provides for elimination based development wherein for each development, multiple participants are selected and at each milestone, some of the participants are dropped based on progress/ performance.

iDEX is being implemented by Defence Innovation Organization, a SPV floated for this purpose with ₹ 50 crore support each from BEL and HAL. Other Defence PSUs have also been asked to fund DIO.

A Special Purpose Vehicle, namely Defence Innovation Organization, was floated as a section 8 company, with equity of ₹ 50 crore each from Bharat Electroncis Ltd. and Hindustan Aeronautics Ltd. Subsequently, all Defence PSUs have been requested to contribute another ₹ 100 crore to the DIO.

A Memorandum of Intent (MoI) between iDEX (Innovations for Defence Excellence) and DIU (Defence Innovation Unit), USA was signed on September 6, 2018 This MoU will enable Indian Start Ups in Defence to have greater exposure to similar initiative being implemented in USA.

7.9 ***Developing Artificial Intelligence based capabilities:*** Task Force was constituted under the Chairmanship of Shri N. Chandrasekaran, Chairman, Tata Sons to study the strategic implications of Artificial Intelligence in National Security and Defence needs and to make appropriate recommendations in this regard. On the recommendation of the Task Force, Ministry of Defence has issued directions to:

- Establish a high level Defence AI Council (DAIC) headed by the Raksha Mantri, with the three Service Chiefs, Defence Secretary, Secretary (DP), Secretary (DRDO), FA(DS), National Cyber Security Coordinator, CISC, representatives from industry and academia as its members. DAIC is to provide necessary guidance to enable and effect development or tailoring of operating framework, policy level changes and structural support for AI implementation in Defence.

- Establish a Defence AI Project Agency (DAIPA) with Secretary (DP) as the ex-officio head of the agency and members drawn from three Defence Services, IDS, DRDO, DPSUs, academia and industry. DAIPA, besides acting as a secretariat for the Defence AI Council (DAIC), will have the prime responsibility of enabling the design, development and production of AI based systems and AI based processes across the services and other defence organisations. Accordingly, DAIPA was constituted vide DDP's order dated March 1, 2019.

- Funds amounting to ₹ 100 crore to be earmarked each year by each Service Headquarter for AI specific application development for next five (5) years from their annual budgetary allocations. Further, a budgetary allocation of ₹ 100 crore to be made by MoD each year for the next five (5) years to DAIPA for implementing recommendations made by the AI Task Force including setting up AI projects, AI infrastructure, clearing and preparing AI

related data, Capacity Building etc. in MoD organisations.

Some of the AI based products/technologies under development by Defence PSUs and OFB are as follows:

Defence PSU / OFB	AI based product / technologies
BEL	1. Terrorist activity analysis in terms of Terrorist Initiated Incidents (TII), Terrorist Committed Atrocities (TCA) and Crime analysis as part of Social Network Analysis. 2. Proof of Concept Human Face Recognition
HAL	1. Voice Activated Command System (VACS). 2. Automatic Target Recognition.
MDL	1. Robotic Weld Inspection Using Advanced Phased Array Technique To Replace Manual Radiography. 2. Design & Prototyping of Remotely Operated Vehicle (ROV).
GRSE	1. Unmanned Surface Vessel (USV).
BEML	1. Sleep/Fatigued operator alert system on Dump trucks. 2. Autonomous Dozer for snow clearing application.
GSL	1. Shipboard Equipment Condition Monitoring System.
HSL	1. Unmanned Underwater Vehicle.
BDL	1. Smart Counter Measures Dispensing System (CMDS). 2. Smart Assistant for Product Support (AI enabled 24X7 Chat Bot).
MIDHANI	1. Development of alloys with online process control and Decision Making through a sensor based instrument system.
OFB	1. Drone Assisted Mine Protected Vehicle.

7.10 ***Development of Intellectual Property by Defence PSUs and OFB:*** During the year, DDP has initiated a new programme to promote greater culture of innovation and technology development in Defence PSUs and OFB. As part of this effort, "Mission Raksha Gyanshakti" programme was started targeting to train DPSU and OFB employees and to file greater number of patents for new technologies/process innovations made by them.

This Mission was launched formally by Raksha Mantri on November 27, 2018. Salient achievements of Mission Raksha Gyan Shakti for the year 2018-19 are as follows:

(a) A total 12,088 personnel have been trained.

(b) A total 730 IPR applications have been filed by DPSUs/OFB. It is remarkable to note that for some DPSUs and OFB filed their first ever patents as part of this process despite decades of their existence.

7.11 ***Other Major Initiatives:*** Several Initiatives have been taken by Department of Defence Production, Ministry of Defence to promote defence production in the country. Some of the salient initiatives are mentioned below:

(a) ***Revised Make-II procedure:*** A Revised Make-II procedure was approved by Government in February 2018 to enable greater participation of industry in defence supply of capital items. The salient features of the new Make-II procedure include the following:

There will be no limit to the number of industry who may respond to the Expression of Interest (EoI) for development of the prototype subject to meeting the minimum qualification criteria.

(i) Once the RFP is issued, it shall not be retracted. The industry who wins the bid, is assured of an order.

(ii) The case will be progressed even if there is single entity offering an innovative solution.

(iii) Normally, there shall be no negotiations by Contract Negotiation Committee (CNC) in multi-vendor contracts.

(iv) It aims to reduce time from in-principle approval to placing of order by 50%.

Upto December 31, 2018, 34 Make-II projects had been granted Approval-in-Principle. These include 14 projects for Indian Army, 9 projects for Indian Airforce and 11 projects for the Indian Navy.

(b) ***Suo-Moto proposals:*** Under the Revised Make-II, a new feature has been introduced which enables industry to make proposals to the Services for their use. A Standard Operating Procedure (SOP) for consideration of 'suo-moto' proposals of Capital Acquisition has been issued in June 2018. The Services examine the proposal and if they find it relevant to their needs, they can take its development under the Make-II procedure. This suo-moto proposal is novel and for the first time enables industry to initiate proposals for use of the Services. The suo-moto has particular relevance for new technologies/new products being developed by start-ups/industry. The suo-mote proposals can be submitted online through website makeinindiadefence.gov.in. Till December 31, 2018, 4 proposals have been granted Approval-in-Principle and 41 proposals are consideration of the three Services.

(c) ***Indigenization Policy:*** A new Policy for Indigenization of components & spares in defence platforms for DPSUs and OFB has been notified on March 8, 2019. The Indigenization Policy is a set of strategies for indigenization of components & spares in defence platforms.

The objective of the policy is "to create an industry ecosystem which is able to indigenize the imported components (including alloys & special materials) and sub-assemblies for defence equipment and platform manufactured in India and to leverage the said capability to create components export market". It is

estimated that Defence PSUs will reduce the import bill more than ₹ 15000 crore by 2022 through indigenization of products and processes.

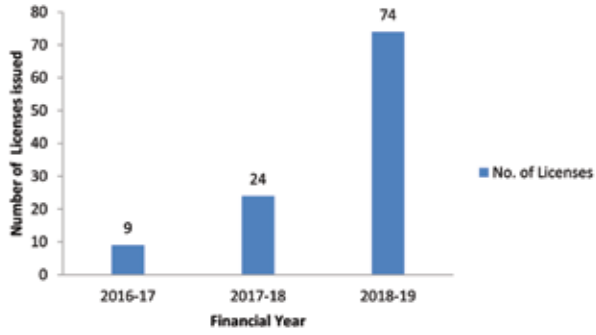
(d) ***Streamlining Industrial Licensing:*** Based on the initiative taken by Department of Defence Production the following liberalisation has been done in licensing of items covered under Arms Act:

- MHA vide notification dated November 1, 2018, had notified Arms Rules 2016 (Third Amendment) wherein it has notified that Firearms (Small Arms and ammunitions and allied items of caliber upto 12.7 mm) and their following parts only are licensable under Arms Act, 1959/Arms Rules 2016.

a. Barrel	b. Cylinder
c. Bolt	d. Breach block
e. Slide	f. Firing Pin
g. Frame or Receiver	h. Extractor
i. Hammer/Striker	

- Further, MHA vide notification dated December 14, 2018 in supersession of their earlier notification S.O. 1636(E) dated May 19, 2017 had revised the schedule of items requiring Industrial License (IL) under delegated powers to Secretary(DIPP) under Arms Act/ Arms Rule according to which "Tanks and other armoured fighting vehicles" and "Arms and ammunitions and allied items of defence equipment; other than small arms of caliber 12.7 mm and above" are only licensable under Arms Act, 1959/Arms Rules 2016".

There has been steady increase in the number of Industrial Licenses issued for defence manufacturing. Government has issued 439 ILs till March 2019 for manufacture of a wide range of defence items to private companies. This is almost double the number of licenses that existed in March 2014. The bar chart indicating Industrial Licenses issued during last three years is as shown below:



(e) ***Foreign Direct Investment:*** In May 2001, the defence industry sector, which was hitherto reserved for the public sector, was opened up to 100% for Indian private sector participation with Foreign Direct Investment (FDI) up to 26%, both subject to licensing. However, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry vide Press Note No. 5 (2016 Series), has allowed FDI under automatic route upto 49% and above 49% through Government route wherever it is likely to result in access to modern technology or for other reasons to be recorded. Further, defence industry is subjected to IL under Industries (Development & Regulation) Act, 1951 and manufacturing of small arms and ammunitions under the Arms Act, 1959/Arms Rules, 2016. So far 42 FDI proposal/ Joint Ventures have been approved in defence sector for manufacture of various defence equipments. Further, significant FDI inflows in Defence and Aerospace sectors

have been witnessed. As per data furnished by the companies, out of 42 companies which have received approval in defence sector, so far, 19 companies have furnished FDI inflow of over ₹ 475 crore while FDI of over ₹ 2178 crore has been received through the automatic route in defence and aerospace sector.

(f) ***Defence Investor Cell (DIC):*** Defence Investor Cell was launched in January 2018, to act as a friend to industry working in defence sector. DIC has been launched to facilitate investment in defence production sector and to directly interact with all the interested investors with regard to potential investment and the queries related to policy and projects handled by the MoD. Defence Investor Cell (DIC) has made it easier for industry to deal with defence requirements. DIC can be accessed online at https://defenceinvestorcell.gov.in. 429 requests from industry mostly MSMEs have been received by DIC since inception and their issues dealt with. The DIC is ensuring response time of less than 2 days to its queries/cases, whereas the average time for successfully closing the query/case is less than 7 days.

(g) ***Defence Production Information Technology (DPIT) Division:*** Department of Defence Production (DDP) had constituted a DPIT Division vide order dated February 9, 2018 to provide IT support for various applications which can aid the objectives of DDP. DPIT Division has started working w.e.f. August 10, 2018. The DPIT Division has been created to implement IT related initiatives in DDP including OFB and DPSUs. The DPIT Division is being headed by CEO, DPIT Division who is Joint Secretary level officer. The DPIT division has implemented the complete IT based solution for Aero India 2019. The Aero India website provided all services related to the event, including selection and booking of exhibition spaces, online payment of spaces booked, booking passes for the exhibition, booking B2B meetings, etc. DPIT has undertaken following IT projects to make Aero India 2019 digital.

- Making aeroindia.gov.in as dynamic website where exhibitors could book exhibition space of their choice on first cum first serve basis by making online payments using Multi-Currency/Multi-Mode Payment Gateways.
- Visitors could purchase e-tickets by making payments online and getting QR code based e-tickets on their registered email ids.
- Setting up QR readers on all gates at Aero India to facilitate smooth entry of visitors having e-tickets
- Aero India mobile app on IPhone and Android phone platform to disseminate information on schedule, exhibitors, layout maps with google overlays and other dynamic information to visitors
- Making the whole exhibition area Wi-Fi enabled to provide free Wi-Fi service to visitors

DPIT Division has also developed the Offset portal for the Defence Offset Management Wing (DOMW) of DDP. The portal has been launched during March 2019 which facilitates end to end electronic system for online submission of offset claims and their processing.

DPIT Division has also initiated the work to develop an Indigenization portal for all Defence PSUs and Ordnance Factories which will provide search facility to the industry to see details of

items to be indigenized based on manufacturing capabilities required and enabling online registration of vendors expressing interest for indigenizing a product.

(h) ***Third Party Inspection (TPI) of Defence Stores:*** To align with Government of India initiative to promote 'Ease of Doing Business' for MSMEs and private sector and achieve national vision "Make in India", HAL developed a model for effective administration of inspection function of out-sourced work with involvement of third parties for inspection services. A document titled "Policy Document on Utilisation of Third Party Inspection Services" was jointly developed by HAL and DGAQA. The policy document was released by Raksha Mantri on February 22, 2018.

Similarly, DGQA has also developed a framework for third party inspection for land systems which was approved by Government on May 30, 2018.

(i) ***Defence Import:*** The Directorate General of Foreign Trade (DGFT) vide Order dated May 28, 2018 delegated powers to the Department of Defence Production (DDP) to grant license for import of restricted items only for defence use. The Standard Operating Procedure for issue of Import License for import of restricted items only for defence use has been notified and published on the website. 28 Import Licenses have been issued to private defence industry during the FY 2018-19 by DDP.

(j) ***Development of indigenous industry ecosystem for Software Defined Radio:*** Software Defined Radio is a basic device which is required for all communications by forces and is set to replace the traditional radio systems. A committee was constituted on November 8, 2018 under the chairmanship of Dr Abhay Karandikar, Director IIT Kanpur for preparing a roadmap for development of Indigenous Software Defined Radio (SDR) ecosystem with a focus to meet requirements of strategic sector and Defence Service indigenously. The committee comprised of all stakeholders including members from three Services, Academia, DRDO, DAE, BEL, Industry and DDP. Based on their recommendations, the following major decisions have been taken:

(i) A Defence Standard Authority to be set up under Directorate of Standardisation, which will consist of all stakeholders including Academia, Services, DRDO and industry. This Authority will undertake all activities to prepare and maintain Indian SDR/ SCA standards, develop and hold a repository of common waveform, manage issues related to testing and certifications in due course.

(ii) Decision to source SDRs from indigenous sources.

In accordance with above decisions, a Standards Development Authority (SDA) has been constituted on March 7, 2019 under Directorate of Standardisation (DoS/DDP) towards development/preparation of standards for critical/emerging technologies which have defence & strategic sector applicability and are critical for self-reliance. As part of their initial work, technical work for developing standards for Software Defined Radio (SDR) has been initiated by SDA under Chairmanship of Dr. Abhay Karandikar, Director IIT Kanpur.

(k) ***Public Procurement Order for DPSUs/OFB:*** To promote greater indigenization by Defence

PSUs and Ordnance Factories, Department of Defence Production has issued 4 notifications under the Public Procurement (Preference to Make in India), Order, 2017 of the Department of Industrial Policy & Promotion. These notifications were issued on June 29, July 26, August 27 and November 16, 2018. These notifications cover 111 items being procured by Defence PSUs and Ordnance Factories. As a result of these notifications, it has become essential for these Defence PSUs to provide preference to domestic manufacturers over imported suppliers, in terms of the said policy.

7.12 ***Strengthening of Defence PSUs and OFB:*** The Department of Defence Production has taken several steps to strengthen and expand the activities of DPSUs and OFB. Some of these initiatives are as follows:

(a) ***Strengthening of OFB:*** The following steps have been taken for strengthening of OFB during 2018-19:

(i) **Approval for capital upgradation/ modernization:** DDP has provided approval for 15 proposals of OFB for capital upgradation/modernization amounting to ₹ 861 crore.

(ii) **Reskilling of workers of OFB:** OFB has been asked to develop a comprehensive reskilling plan on new technology areas/skills. As part of this initiative, 51 workers in Avadi and 173 workers in Kanpur have been trained. Besides Avadi and Kanpur, 170 and 100 workers have also been trained at Shajahanpur and Hazratpur (U.P.) respectively.

(iii) OFB has created an Export Cell headed by a Member level officer at its Headquarters and corresponding Export cells in its factories to enable them to promote export. Additional powers have been delegated to Member OFB to be able to respond to export queries in a timely and meaningful manner.

(iv) IP Cells have been created in all OFB factories to enable greater generation of IP by OFB. During the year 2018-19, 4732 persons of OFB were trained on IP and OFB filed 157 IPs, thanks to the efforts of the IP Cells.

(v) OFB has started a new plant for manufacture of Ammonium Perchlorate, a strategic ingredient used in propellants for Rockets and Missiles in its factory at HEF, Khadki. The plant is in operation since March, 2019.

(vi) Revised Procurement Manual has been approved for OFB in August, 2018 thereby streamlining a number of procurement related issues by OFB.

(b) ***Capital Investments for Defence PSUs:*** The Defence PSUs have been encouraged to make additional capital investments in the two Defence Indusry Corridors as well as in other areas including for modernization. The capital investments made by DPSUs during the year include:

DPSU	Capital Investment during 2018-19 (in ₹ crore)
HAL	1475.00
BEL	649.40
MDL*	169.14

DPSU	Capital Investment during 2018-19 (in ₹ crore)
BEML#	64.16
GRSE	46.80
GSL	101.70
BDL^^	89.55
MIDHANI$	193.57
HSL^	15.74

* In other areas including for modernization.

During the year 2018-19, investments were made for augmenting manufacturing of Missiles/ Space components, robust cyber security and to meet the future requirements

$ Out of ₹ 193.57 crore, capital investment, ₹ 92.65 crore Capital Investment through customer funding.

^ Provisional figure.

^^ Approx.

(c) ***Expansion of HAL`s production capacity for Light Combat Aircraft (LCA):*** The Government has, in March 2017, approved a proposal for expansion of production capacity of LCA at HAL from 8 aircraft per year to 16 aircraft per year, at an estimated cost of ₹ 1381.04 crore, of which 50% is being funded by HAL.

Defence Public Sector Undertakings (DPSUs)

Hindustan Aeronautics Limited (HAL)

7.13 Hindustan Aeronautics Limited (HAL) has 11 R&D Centers and 20 Production Divisions situated in 7 States at 9 geographical locations. HAL so far has indigenously designed and developed 17 types of aircrafts and helicopters. In addition, HAL has also produced 14 types of aircrafts and helicopters under license from foreign Original Equipment Manufacturers (OEMs). So far, HAL has produced over 4100 aircraft and over 5100 aero-engines. HAL has also completed over 11300 overhauls of aircraft and over 34000 overhauls of engines. HAL has achieved Export Sales of ₹ 404 crore for the FY 2018-19. The Company had achieved highest turnover of over ₹ 19400 crore (Provisional) for the FY 2018-19.

Important events and achievements:

- HAL became a listed company on BSE and NSE on March 28, 2018.
- The LCA Tejas has successfully completed Air to Air Refueling (AAR) trial by mid-air engagement and transferring fuel from fuel tanker aircraft to LCA on September 10, 2018. With this, India joins the elite group of countries who have developed the Air-to-Air refueling system for military class of aircraft.
- 2 LCA Tejas aircrafts participated in the flying display at the 15th Langkawi International Maritime & Aerospace Exhibition (LIMA), 2019 from March 26-30, 2019

LCA Tejas being refueled in mid-air air to air refueling trail on September 10, 2018

- HAL completed the production of 16 LCA aircrafts as per Initial Operational Clearance (IOC) contract.
- HTT-40 has completed all the technical requirements for Initial Operational Clearance

(IOC) except the Spin Trial which is under progress.

- Light Combat Helicopter (LCH) has successfully completed all weapon integration and firing tests in January 2019 and is ready for operational induction. Initial Operational Clearance (IOC) of LCH for Army version was accorded by CEMILAC on February 15, 2019.

- HAL was the nodal DPSU for Organisation of Defexpo 2018 at Chennai and Aero India 2019 at Bangalore.

- In Aero India 2019, HAL has showcased its prowess in defence and aerospace centered on the theme 'Innovate, Integrate and Lead'. HAL has also carried out flying display of indigenous products Light Combat Aircraft (LCA) Tejas, HTT-40 (Basic Trainer Aircraft), indigenously upgraded Hawk Mk132 i.e. Hawk-i, Civil Do-228, ALH-WSI (Rudra), Light Utility Helicopter (LUH), Light Combat Helicopter (LCH).

- HAL manufactured Do-228 aircraft has been handed over by the External Affairs Minister to the President of Republic of Seychelles on June 26, 2018.

- Service clearance document for FOC of Mirage 2000 Upgrade from RCMA has been received on May 29, 2018.

- The modified Lander Craft Module Structure of Chandrayaan-2 was delivered to ISRO by HAL Aerospace Division on September 5, 2018. The structure facilitates jerk free ejection and smooth landing on the lunar surface.

- Maiden flight of third prototype (PT3) of Light Utility Helicopter (LUH) has been conducted successfully on December 14, 2018.

- HAL has successfully achieved running of HTFE-25 core-2 engine upto 100% with IGV modulation in March 2019.

Raksha Mantri visited HAL stall during AeroIndia-2019

- HAL has successfully flown Light Utility Helicopter (LUH) from Greenfield Helicopter Manufacturing facility, Tumakuru on December 29, 2018.

- HAL displayed the Naval Utility Helicopter (NUH) with Tail Boom Folding and Main rotor folding as a Technology Demonstrator during the Aero India 2019. The NUH is the Advanced Light Helicopter (ALH) Dhruv with customization to meet the operational requirements of the Navy.

- HAL floated Request for Information (RFI) for selection a private Indian partner for Civil ALH production through Transfer of Technology (ToT).

Initiatives toward supply chain management:

- HAL has implemented the Public Procurement Policy for Micro and Small Enterprises (MSEs) and has achieved more than 25% procurement from MSE Entrepreneurs (excluding Defence Procurement as per Sl. No. 14 of the Policy).

- HAL has implemented the Purchase Preference Policy (Make in India) Policy w.e.f July 1, 2018 and includes the provision of Purchase Preference Policy (Make in India) in all tenders where the Local / Non-Local suppliers included.

Bharat Electronics Limited (BEL)

7.14 BEL, a Navratna Company, established in 1954 under MoD has nine Units across India with core competencies in Radars & Weapon Systems, Sonars & Fire Control Systems, Communication, Network Centric Systems, Electronic Warfare, Electro-Optics and Tank Electronics. Non-Defence product range includes EVMs, Tablet PCs, Access Control Systems, Homeland Security Systems and Solar Systems etc.

Research & Development: BEL has R&D facilities in all nine Units to achieve self-reliance. Company has made a 3 year R&D Plan identifying future programs & various technologies, Knowledge Management Portal etc. On an average 10 new products are introduced annually. BEL spends around 9% of its annual turnover on R&D.

Major achievements in 2018-19:

- Launching of SWAGAT, the Automatic Fare Collection Gating System jointly developed by BEL & C-DAC by Prime Minister on the inauguration of Ahmedabad Metro Ph-I.

- Establishment of 16MW Grid Connected Solar Power Plant at HVF, Avadi (Chennai).

Inauguration of 16MW Grid Connected Solar Power Plant by Raksha Mantri at Heavy Vehicles Factory (HVF) - Avadi (Chennai)

- Inauguration of BEL Representative Office at Vietnam

Recognition & Patent for innovation in EVM

- Receipt of ISO 27001 Information Security Management System Certification

- Recognition & Patent for innovation in EVM/ VVPAT.

Future Outlook: With ever increasing competition, customizing the latest technologies introduced for the civilian market & adopting them for defence is a perennial challenge for BEL. To sustain growth, BEL has adopted various strategies like changes in organization structure, enhanced thrust on New Product Development, Diversification, Process/Infrastructure Improvement etc.

Indigenization: Achieved 89% of turnover through indigenous technology. Major products in recent past include Akash, Low Level Light Weight Radar, 3D Tactical Control Radar, Identification of Friend or Foe, Combat Management System, Low Intensity Conflict EW System, Digital Flight Control Computer & Avionics for LCA, etc. Government's emphasis on 'Make in India' initiative in Defence sector provides a great opportunity for BEL to enhance its indigenization efforts.

Modernization: BEL has been continuously modernizing its infrastructure to be in tune with changing needs of technology/products. Major facilities established in recent past include Shock & High Temperature Test Facilities, BEL Academy of Excellence, Advanced EMC Testing Facilities/Anechoic Chamber, Secured Manufacturing Test facilities for EVMs/VVPATs, State-of-the-art Electronic Artillery Fuse manufacturing etc.

BEML Limited (BEML)

7.15 BEML is a diversified Company and engaged in design, development, manufacturing, sales and after sales activities of a wide range of Mining & Construction, Defence & Aerospace and Rail & Metro products. The Company has exported its products to 68 countries over the years.

Mounted Gun Systems Showcased During DEFXPO 2018

During the year, R&D has designed and developed high technology products/ aggregates and up-gradation of existing products like 155mm Mounted Gun System, 180T Hydraulic Excavator, 860 HP Bulldozer, Arjun Armoured Repair & Recovery vehicle, Intermediate Metro Cars for Bangalore & Metro Cars for Kolkata and Diesel Electric Tower Cars (DETC). The Company has bagged a major order worth ₹ 3000 crore for supply of Metro cars to Mumbai Metro Rail Corporation Limited. During the year, sixty-five patents were filed. The Company has already achieved over 90% indigenization level in Mining & Construction and Rail products. Over 60% in Metro cars, and over 80% in BEML High Mobility Vehicle 8x8.

India's biggest in–house designed & developed 190 Ton dump truck BH205E supplied to M/s. NCL

BMRCL Intermediate Metro Car

Bharat Dynamics Limited (BDL)

7.16 Bharat Dynamics Limited, Hyderabad (BDL), a Miniratna Category-1 Company, was incorporated in the year 1970 under the Ministry of Defence is a pioneer in the manufacture of Anti-Tank Guided Missiles (ATGMs) in the country. BDL is evolved as a conglomerate manufacturing ATGMs of new generation, Surface to Air Missiles (SAMs), strategic weapons, launchers, underwater weapons, decoys and test equipment. BDL is fully geared up to meet the demands of Armed Forces by capacity augmentation of all its major projects. The Company is achieved a sales turnover (net) ₹ 3187 crore during the current year i.e. 2018-19. Company is manufacturing Akash Missiles for both the Army and the Air Force. Country's first indigenous Nuclear Submarine INS Arihant has BDL manufactured weapons i.e. C-303 Anti-Submarine Decoy System and B-05 strategic missile. BDL is also the lead Integrator for MRSAM.

BDL is developing Amogha-III a 3rd generation Fire-and-Forget, IIR Seeker based ATGM. Prototypes of all the sub-assemblies of the missile are being developed as per in-house design. Pop-out test, which is the first milestone of the project, was successfully conducted twice on December 27, 2018 and January 18, 2019 at BDL-Bhanur. During both tests, parameters such as Launch Velocity, Launch Acceleration, Combustion Chamber pressure, Missile ejection time etc. have been achieved as per design.

BDL has received an order for supply of 4331 Nos of Konkurs-M valued at ₹ 830.46 crore (Including Taxes) from Indian Army on December 31, 2018. Also order for Supply of 250 nos of Konkurs-M ATGM Launcher valued at ₹ 72.27 crore (Including Taxes) has been received by BDL.

On January 25, 2019, Secretary (Defence Production) inaugurated the Acoustic Tank Test Facility at BDL's Visakhapatnam Unit. The test facility is one of its kind world class test facility used for testing underwater weapons like Torpedoes, Mines, Son buoys, Decoys and other related systems.

On January 25, 2019, Secretary (Defence Production) inaugurated the Acoustic Tank Test Facility at BDL's Visakhapatnam Unit

BDL has successfully completed the Sea Acceptance Trails (SAT) of 3 Nos of Drill & Practice Torpedoes, LWT-XP at Myanmar in March 2019.

In pursuance of high quality standards Milan-2T, Konkurs-M, Invar, Akash and Electronics divisions have upgraded to AS 9100 D Aerospace Quality Management system standards.

Indigenization: BDL is putting up determined efforts towards indigenization of ATGMs with the objective of increasing self-reliance, reduction of Foreign Exchange (FE) out flow and achieving cost reduction. Indigenization of products like Konkurs-M, Invar, Milan-2T has been achieved upto 95%, 78.6% and 71% respectively.

CAPEX & Modernization: ₹ 90 crore has been earmarked for 2018-19 on CAPEX towards modernization of Plant and Machinery and other infrastructure developments.

Corporate Social Responsibility: BDL has taken up the various programs such as; adoption of village: construction of community Hall, additional class rooms in elementary school, primary health centre and toilets in individual houses & Skill Development Programme: skill development for unemployed Divyangajans through NHFDC, adoption of Government ITI, Skill Development Programme through CIPET, Establishment of Centre of Excellence (CoE) etc. for betterment of the life of people of Telangna and Andhra Pradesh.

Garden Reach Shipbuilders & Engineers Limited (GRSE)

7.17 GRSE, a Mini Ratna Category - I Company, under the administrative control of Ministry of Defence, is one of the most diversified nationalised Establishment in the country that has played a very important role in the defence preparedness of India ever since it has been taken over by the Government in the Year 1960. What started in 1961 with the delivery of INS Ajay, a Seaward Defence Boat (Mark–I), as the first warship dedicated to the nation has seen a splendid culmination with the delivery of the 100th warship delivered by GRSE on March 30, 2019. The ship is constructed with over 90% indigenous content giving further boost towards indigenisation and self-reliance. Besides, the modern infrastructure facilities available at its shipyard, with integrated facility to construct 20 ships concurrently coupled with its vast design expertise, gives GRSE a significant edge over other domestic defence shipyards. GRSE developed successfully an array of world-class platforms including Frigates, Missile Corvettes, Survey Vessels, Marine Acoustic Research Ship, Anti-Submarine Warfare Corvettes, Landing Ship Tanks (Large), Fleet

Tanker, Water-Jet Fast Attack Crafts and the Landing Craft Utility and also the First Export Warship, an Offshore Patrol Vessel to Mauritius. All these Warships are armed with high-tech infrastructure. Besides shipbuilding the Company has also diversified its business in Engineering products such as Portable Bailer Bridges, Deck machinery equipment like Capstans, Boat Davits, Rail less Helo Traversing System, Marine Pumps, diesel alternators and high powered diesel engines.

Financial Performance: The Company achieved a turnover (Value of Production) of ₹ 1342.38 crore in 2017-18. The Profit Before Tax of the company for 2017-18 is ₹ 127.75 crore and the Net Profit (PAT) was ₹ 86.80 crore. The Net Worth of the Company is ₹ 1015.93 crore. The Company achieved a Turnover (VOP) of ₹ 893.18 crore up to December 31, 2018 of FY 2018-19. The company declared a Dividend of ₹ 50.80 crore for the FY 2017-18 on October 4, 2018. For FY 2016-17 Dividend was paid for an amount of ₹ 54.08 crore on February 28, 2018 and also declared an Interim Dividend of ₹ 21.19 crore for FY 2018-19.

Handing over of GRSE built 100th warship

Deliveries and Commissioning: During the period from April 1, 2018 to March 31, 2019, GRSE delivered 3 Nos. Landing Craft Utility Ships (IN LCU L-54 to IN LCU L-56) to Indian Navy and 1 No. Fast Patrol Vessel (Priyadarshini) to Indian Coast Guard. Further, 3 Nos. Landing Craft Utility Ship IN LCU L-53 on April 25, 2018, IN LCU L-54 on May 25, 2018 and IN LCU L-55 on December 19, 2018 were also commissioned during this period.

Landing Craft Utility (LCU)

Fast Patrol Vessel (FPV)

Modernisation: Garden Reach Shipbuilders & Engineers underwent major modernization and infrastructural augmentation and can now construct 20 ships (i.e. 8 large ships & 12 small ships) concurrently. Also, modernization of Raja Bagan Dock (RBD) unit of the company is underway. On completion of this modernization project by 2021 the shipbuilding capacity will increase from 20 to 24 ships concurrently. A Modern Pump Test Bed facility has been created at GRSE's Taratala unit on June 11, 2018 towards fruitful implementation of 'Make in India' programme. Virtual Reality Lab of Central Design Office has been commissioned at GRSE's 61 Park unit on July 7, 2018 for future ship designs & marketing and also as a new Profit Centre, extending the facility for further utilization by Indian Government & Private Industries. Shipyard's Central Design Office has been recognized

and certified by Department of Scientific & Industrial Research (DSIR), Ministry of Science and Technology as an in-house "R&D Unit".

Goa Shipyard Limited (GSL)

7.18 GSL, a Mini Ratna Group-I status company, has proven capabilities of in-house design and building sophisticated high technology warships for Indian Defence Forces and other varied clients, including Export markets. It builds a wide range of Patrol Vessels, Missile Boats, Landing Crafts, Training Vessels, Survey Vessels, Sail Training Ships, Fast Patrol Vessels and Yardscrafts for the Defence Sector, besides other types of vessels in the commercial sector. GSL has delivered over 210 ships and more than 160 Fast Interceptor Boats.

1000 T Barge for Indian Navy

Financial Performance: The company has achieved VOP of ₹ 1342.67 crore during FY 2017-18. The Profit Before Tax of company is ₹ 330.54 crore during 2017-18, highest in last six years.

Deliveries/Launching/Keel Laying/Guarantee Refit/ Inaugurations during the Year: During the year GSL has delivered one OPV to Sri Lanka Navy, two Fuel Barges and one NBCTF to Indian Navy ahead of contractual schedule. The 1st Vessel of the indigenous Project for 5 Offshore Patrol Vessels for Indian Coast Guard was launched on February 21, 2019. Keel was laid for on-going third Coast Guard OPV Yd 1235 and fourth Coast Guard OPV Yd 1236 and inauguration of accommodation facility for Foreign Specialist /ToT Providers by Secretary (Defence Production) on November 10, 2018. Guarantee refits of 5 ships completed during the year comprising of 3 OPVs for Indian Coast Guard, 1 OPV for Sri Lanka Navy and 1 Fast Patrol Vessel for Mauritius.

Make in India Initiative: GSL has signed contract with Russia for indigenous construction of Advanced Stealth Frigates 1135.6 for Indian Navy. GSL has also made concrete plans for indigenous construction of Hovercrafts. The process for identification of collaborator for indigenous construction of MCMV is in progress.

GSL supports the initiative by way of ordering of Gear Boxes from Indian vendor and Development of Steering Gear system, Fin Stabilizer System, Heli Grid, Doors (Water & Weather tight) and Gemini Boats have increased the indigenous content to 70% in ongoing 5 CGOPV Project as against 62 % in earlier 6 CGOPV Project. Further Shipyard is in the process of indigenous development of Equipment / items for the Frigate 1135.6 project through the ancillary industries.

105M of Offshore Patrol Vessel for Sri Lanka Navy

CAPEX- Modernisation: Yard Infrastructure Augmentation Plan is being executed in four phases, of which phase 1 & 2 (6000 T shiplift and dry berths) was completed in March 2011 and Phase 3A (ship construction bays and fabrication bays) was completed in August 2016. The balance phases 3B and 4, comprising of facility for erection of GRP hull and Command and Control Centre for upcoming MCMV Project, are likely to be completed by end 2020.

R&D: As part of indigenous design and development of product for future requirement, GSL has developed design of 105 meter Multi-Purpose Offshore Patrol Vessel and Landing Ship Tanks for export. Further, Design of High Speed Missile Platform and Coastal Patrol Vessel are in progress. The construction, of Prototype (First of the Class) of New Offshore Patrol Vessel for Coast Guard is in progress.

Hindustan Shipyard Limited (HSL)

7.19 HSL is the largest and strategically located shipyard under Ministry of Defence. The yard has so far built 186 vessels (including 11 wellhead platforms) and repaired about 1968 vessels for the defence and maritime sector. HSL, earlier under the Ministry of Shipping and Surface Transport, came under the administrative control of Ministry of Defence on February 22, 2010.

Financial Performance: HSL achieved a Value of Production (VoP) of ₹ 644.78 crore and total income of ₹ 651.67 crore in FY 2017-18 which are the highest and third best since inception of the company respectively. The operating profit achieved in FY 2017-18 i.e ₹ 69.80 crore is the highest since inception of the company. HSL has achieved profit after tax (PAT) of ₹ 20.99 crore in Fy 2017-18. The VoP, total income and PAT achieved in FY 2018-19 are ₹ 540 crore (Prov.), ₹ 553 crore (Prov.) and ₹ 20 crore (Prov.) respectively.

Shipbuilding: HSL has delivered 7 vessels and repaired 14 vessels during the period from January 2018 to April 2019. The vessels delivered during the period are:

- Inshore Patrol Vessel 'ICGS Rani Rashmoni' delivered to Indian Coast Guard on May 25, 2018
- 50T Bollard Pull Tug, Krittika delivered to Deendayal Port Trust on September 20, 2018
- 2 Nos 10 T Bollard Pull tugs 'Abhishek' and 'Aja' delivered to Andaman & Nicobar Command on March 11, 2019.
- 1 No 10 T Bollard Pull tug 'Bahadur' delivered to Naval Ship Repair Yard Kochi on March 30, 2019
- 2 Nos Pontoons constructed for Naval Dockyard (Visakhapatnam) March 30, 2019

HSL has signed two contracts for construction of 2 Diving Support Vessels worth ₹ 2393 crore and 4 Nos. 50 T BP Tugs worth ₹ 260 crore for Indian Navy for on September 20, 2018 and February 14, 2019 at MoD, New Delhi. The shipyard has won these contracts in the competitive tendering process involving both public and private sector shipyards. Further, HSL has also signed a contract worth ₹ 20.72 crore with Director General Naval Projects, Visakhapatnam for construction of 3 Flap Gates to Naval Dockyard (Visakhapatnam) on March 14, 2019

Submarine Refits/ Construction: The Normal Refit of EKM Class Submarine, INS Sindhuvir scheduled for 27 months is progressing within the timelines.

Modernisation: To meet the futuristic requirements of Indian Navy and Coast guard including submarines and weapon intensive war vessels, refurbishment and replacement of machinery and infrastructure is in progress. Further, implementation of SAP ERP solution is in progress and expected to 'GO LIVE' in 2019-20. The unique feature of this ERP system would be integration of Design software, Aveva Marine including its 3D features with an embedded PLM in SAP. This would be first time in any Indian Shipyard that Design software would be integrated with any ERP software through PLM.

Mazagon Dock Shipbuilders Limited (MDL)

7.20 Mazagon Dock Shipbuilders Limited (MDL) is a leading Shipyard amongst Defence PSU Shipyards, engaged in construction of advanced Missile Destroyers, Stealth Frigates and Submarines for the Indian Navy.

Financial Performance: The value of Production (VoP) target for the year 2017-18 ending March 2018 is ₹ 4399.16 crore. The Profit after Tax is ₹ 439.80 crore.

Projects: MDL is presently building four missile destroyers under Project P15B, four stealth frigates under Project P17A and six Scorpene submarines under Project P75. MDL is also undertaking 'Medium Refit and Life Certification' job of INS Shishumar.

MDL plans to develop a Greenfield shipyard at Nhava. This facility would also aim for construction of commercial ships.

MDL is currently undertaking capital expenditure by way of construction of a submarine launch facility, for the newly built Submarine Assembly Workshop. This would enable creation of capacity for building and launching submarines from two independent lines.

Research and Development (R&D) Activities:

(a) Assessment (Buckling analysis) of Pole mast structure to ascertain adequacy of scantlings to withstand the loads due to self-weight of equipment and other environmental loads.

(b) Analysis of the structure in way of dual probe receiver for given load to ascertain the maximum stress induced in the structure is within the yield stress and optimize the structure.

(c) Shaft Alignment Calculations for innovation to minimize the time for alignment activity to establish alignment procedure in dry dock condition and carry out the final alignment in dry dock and load checks in alignment condition.

(d) Aerodynamic simulation for modified superstructure of ship and to determine the positioning of surveillance equipment.

(e) Enhancement of Ergonomics in one machinery compartment and four accommodation compartments in Destroyer/Frigate class ships to improve aesthetic appeal ease of operation and better man machine interfaces in a ship.

(f) Development of Artificial intelligence (AI) enabled prototype of a remotely operated underwater vehicle (ROV).

(g) Development of Artificial intelligence (AI) enabled robotic weld inspection using advanced phased array technique to replace manual radiography.

(h) Development of Artificial Intelligence (AI) Enabled Weld Inspection with Computerized Radiography

Modernisation: MDL has successfully put to use for production its infrastructure under Mazdock Modernisation Project These includes a new Wet Basin, Heavy Duty Goliath Crane, Module Workshop, Cradle Assembly Shop, Store Building and associated ancillary structures, 50 mtrs extended track of Golaith Crane towards sea, and state-of-the-art Submarine Section Assembly (SSA) Workshop with green building features. Work on modernization of the following facilities is in advanced stage:

(i) Modernisation of marine pile jetty at North Yard.

(ii) New improvised network of piped services across MDL.

(iii) Construction of Submarine Launch Facility.

(iv) Creation of new Navigational Channel with 10m draft in order to facilitate safe navigation of warships being constructed at MDL.

Indigenisation: MDL has already set up dedicated indigenization department and has "Make-In-India" webpage linked to MoD's website. Many items of Ships & Scorpene Submarine are taken up for indigenization to achieve more self-reliance.

Mishra Dhatu Nigam Limited (MIDHANI)

7.21 Mishra Dhatu Nigam Limited (MIDHANI) is a specialized metal and metal alloys manufacturing "Mini-Ratna Category-I" company set up on the November 20, 1973 to manufacture critical and complex alloys / material like Superalloys, Commercially Pure Titanium and Titanium Alloys etc. required in the strategic sectors of India's defence industry and for sectors like nuclear power, satellite launch vehicles, aircraft etc.

Financial Performance: Highest Value of Production of ₹ 697.68 crore for the FY 2017-18 over the VoP of ₹ 695.64 crore achieved last year. Profit Before Tax (PBT) for the FY 2017-18 is ₹ 196.78 crore as against ₹ 187.85 crore last year, registering an increase of 4.75 % and Operating Profit of ₹ 162.64 crore.

Timely Deliveries to Customers: In order to expedite deliveries and cut down the incidence of contractual penalties and damages for delayed deliveries, strategic decisions like modernization and outsourcing of some of the company's non-core operations to premier institutions are resorted to wherever such facilities are cost effective and efficient.

Research & Development (R&D): MIDHANI's R&D initiatives are focused on developing new grades and Products for its customers, Process development and modification and Yield improvement. A Technology Advisory Board consisting of eminent personalities in Metal Industry regularly meets to guide and review the R&D activities of MIDHANI. The in-house research and development team works towards improvement of product quality and process innovation for meeting the expected demands at competitive prices. We have entered into collaborations with Indian and international research institutions and organizations to gain access to the required know-how for developing various key advanced technology products.

Modernization & Up-Gradation Program: Phase 1 Modernization of MIDHANI at a Capital Outlay of around ₹ 400 crore was successfully completed by revamping / upgrading /enhancing production capacities. Prominent among them are new 6000 T Forge Press with 20 T Manipulator, Radial Axial Ring Rolling Mill, Establishment of a New Fastener Plant, R&D Building, Installation of 20 Ton Electric Arc Furnace with Vacuum Degassing (VD) / Vacuum Oxygen Decarburizing (VOD) and Ladle Refining Furnace (LRF). Phase 2 of Modernization pegged at around ₹ 1000 crore is currently underway. MIDHANI has thus successfully positioned itself to serve existing and new customers in domestic markets.

Level of Indigenization: In MIDHANI, Indigenous Procurement as percentage (%) of VoP has increased from 81.58% in FY 2016-17 to 83.87% in FY 2017-18 resulting in MIDHANI achieving an increase of 2.81% in indigenization over previous year.

Ordnance Factories under the Ordnance Factory Board (OFB)

7.22 Indian Ordnance Factories are the oldest and largest industrial setup which functions under Ordnance Factory Board (OFB) with the objective of achieving self-reliance in equipping the armed forces with state-of-the-art battlefield equipment.

Core competence of Ordnance Factories:

Weapons	Small, Medium and Large Calibre Weapons & Mortar Equipment
Ammunition, Explosives & Propellants	Small, Medium and Large Calibre Ammunition, Mortar Bombs, Signaling and related stores, Rockets & Aerial Bombs, Fuzes, Explosives, Chemicals & Propellants
Military Vehicles	Trucks, Mine protected and Special Security Vehicles
Armoured Vehicles	Tanks & its variants, Armoured Personnel Carrier(APCs) & Engines
Instruments & Optical devices	Night & Day Vision Sights & Instruments
Parachutes	Brake Parachutes, Man dropping & Supply dropping Parachutes
Troop comfort & General Stores	Tentage, Clothings, Personal equipment, Bridges, Boats, Cables etc.

Overall indigenous content: Presently, Ordnance Factories are manufacturing items with overall indigenous content of 87%. A milestone was achieved in 2018-19 when Ordnance Factories handed over 100% indigenous engines of tank T-72 and Tank T-90 to Indian Army.

In-house R&D: Continued thrust on in-house R&D over last decade has yielded positive results. OFB's ambitious 155x45 Cal Dhanush gun has cleared firing trials conducted by Indian Army. Army has conveyed Bulk Production Clearance (BPC) for Dhanush in February, 2019 and OFB has made six Guns ready duly cleared by DGQA in March, 2019 to be handed over to Army.

155x45 Cal Dhanush Artillery Gun System

Further, OFB was successful in signing contract with Indian Army for 130/155mm Up-gun where it emerged the single technically acceptable offer in competition with equipment of imported origin. In the ammunition segment OFB has successfully established production of 7.62mm A-7 Ammunition for AK-47 Rifle and bulk supply has commenced. OFB has developed 20mm AMR Ammunition (SAPHEI) for MHA and GHASHA propellant for 30mm Ammunition for Indian Navy.

Export: Special focus was given on exports resulting in orders/ supply of pistols, large calibre barrel and ammunition, mine protected vehicles and other items. Consequently, OFB has executed an all-time high export orders worth over ₹ 267 crore during the year 2018-19.

Green Energy: OFB is significantly contributing to Green Energy and has installed 76.49 MW Solar Power Plants across various Ordnance Factories.

Value of Production & Value of outsourcing: OFB has achieved value of production of ₹ 12790 crore (provisional) direct issues excluding duties and taxes during 2018-19. During 4th quarter of 2018-19, OFB has issued ₹ 4631 crore direct issues to various indentors. Value of outsourcing achieved upto 3rd quarter and upto 4th quarter of 2018-19 is as under:

(₹ in crore)

Year (provisional)	Value of Production	Direct Import	Labour and overheads	Value of Outsourcing
2018-19 (Upto 3rd quarter)	8185	212	5421	2552
2018-19 IV quarter (January 1 to March 31, 2019	4631	1478	2678	475
2018-19 (Upto 4th quarter)	12816	1690	8099	3027

Indo-Russian Rifles Pvt. Ltd (IRRPL): In accordance with the Inter-Governmental Agreement (IGA) between Union of India and Russian Federation signed on February 18, 2019, a Joint Venture Company (Indo Russian Private Limited) under the Companies Act, 2013 has been constituted between Ordnance Factory Board (OFB) & JSC Rosoboronexport (JSC ROE) and JSC concern Kalashnikov (JSC CK), for production of AK series Assault Rifles including AK-203 and other small arms in India. The JV Company will manufacture at least 7, 50,000 Nos of assault Rifles @ 75,000 Nos. per annum to meet the requirement of the Services and MHA etc. The production line will be 100% indigenized within a time frame of 32 months from the date of placement of contract on the Company by the Ministry of Defence.

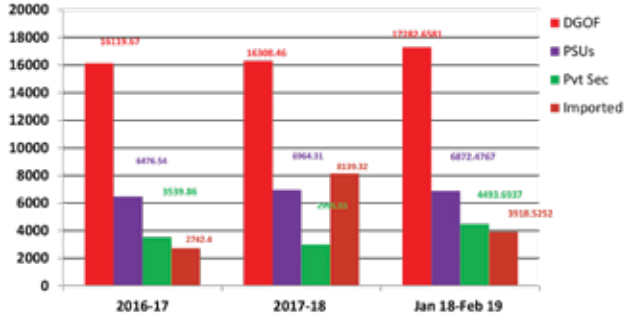
Directorate General of Quality Assurance (DGQA)

7.23 Directorate General of Quality Assurance (DGQA) is an Inter-Service Organisation functioning under the Department of Defence Production in the Ministry of Defence. DGQA is responsible for Quality Assurance of all defence stores and equipment, both imported as well as indigenous for the Army, Navy (excluding Naval Armaments) and common user items for the Air Force procured from the Private Sector, Public Sector Undertakings and Ordnance Factories.

Organisational Structure and Functions: DGQA Organisation is structured into eleven Technical Directorates, each responsible for a distinct range of equipment. The Technical Directorates are structured in two tiers for functional purposes, comprising of Controllerates and Field Quality Assurance Establishments. In addition, there are Proof Establishments in Armament Discipline for carrying out proof of weapons and ammunition.

Achievements

- ***Quality Assurance of Stores:*** DGQA organisation has carried out inspection of defence stores for total value of ₹ 32567.35 crore during the period January 2018 to February 2019. Manufacturer -wise value of stores inspected during the last three years is as under:



Value of Stores Quality Audited (₹ in crore)

- ***DGQA Technical Evaluation:*** During the period January 2018 to February 2019, DGQA has carried out a total of 180 Technical evaluations and attended 17 User Trials of various stores, ammunition and equipment, comprising of a number of complex sub-systems. 77 PDIs and 633 JRIs of various equipment/stores were conducted during the period January 2018 to February 2019.

- ***Grant of Green Channel Certification for Procurement of Defence Stores & Spares:*** With a view to promote ease of doing business to achieve national vision of 'Make in India', it has been decided to institute a mechanism for awarding Green Channel Status to firms having predefined financial and quality credentials for broad categories of items having continuous requirement / mass consumption in Defence forces. Accordingly, a Green Channel Policy has been formulated by the Department of Defence Production with the approval of Raksha Mantri. MoD has issued a policy on Green Channel Status vide order date March 24, 2017 for procurement of defence stores & spares.

- ***Defence Export Scheme:***

  (a) Scheme for promotion of Defence Export was issued by Ministry of Defence. The scheme provides for two options to prospective Defence exporters to request for a certificate from DQA/DGAQA/DGNAI and other DDP notified agencies in respect of Defence equipments/systems indicating "Fit for Indian Military Use" or "Tested and Certified against the QR provided by the prospective Indian Defence Exporter/Manufacturer", for improving the marketability of their products globally.

  (b) DGQA SOP for 'Certification, Testing and Certification under Defence Exports Promotion Scheme' has been promulgated on March 6, 2019.

- ***Modernisation of DGQA Labs***

  (a) ***Testing of Tyres and Tubes for Grant of BIS Certification:*** CQA(V) Ahmednagar Laboratory has become the only laboratory under Ministry of Defence to have the honour of getting recognition from BIS as authorised Laboratory for testing of Tyres and Tubes for grant of BIS Certification.

  (b) ***Goose Down Feather Testing:*** CQA (T&C) Kanpur lab has got IDFB accreditation certificate for carrying out the Goose Down feather testing.

  (c) ***Commissioning of SCADA System:*** A supervisory Control and Data Acquisition (SCADA) System commissioned in Environmental Testing Lab (ET Lab) at CQAE(WE) has facilitated auto online data logging and test records archiving leading to higher accuracy and transparency.

- ***Skill India:*** Internship programme to improve QA awareness in country has been launched for students undergoing technical education at various diploma/degree colleges in India.

- ***QA-Industry Meet:*** A number of QA-Industry Conclaves have been organised pan India during the past year, where reps from various industries have participated. Presentation have been made by various Tech Directorates of DGQA during these conclaves to spread the initiatives taken by Government of India, QA procedure and Capacity Assessment /Vendor Registration etc.

- ***DRDO Award for Performance Excellence-2016, MRSAM Air Force Project:*** "Medium Range Surface to Air Missile (MRSAM)" is a co-development Project between DRDO & IAI Israel with a Missile Range of 70 Km. 'DRDO Performance Excellence Award-2016' has been awarded to the Team(Members from DGQA Sr No. 56 Brig Vikram Ahuja, PD MSQAA) handling the MRSAM Project of the Indian Air Force.

- ***155mm/ 52 Cal. Tracked Self-Propelled Gun- K 9 VAJRA:***

  (a) The Indian Army was in need of artillery gun to meet the requirements of 21st century warfare as well as to overcome the depleting fleet of guns over a period of time. To address these issues, a contract of 100 No's K9 Vajra guns was awarded to M/s L&T by Ministry of Defence.

  (b) DGQA was entrusted with prime role of facilitator of project, ensuring speedy delivery of Guns to Indian Army by means of PDI, JRI and Proof firing. The time lines given in contract are very narrow (4 to 5 Guns per Month).

  (c) To achieve the timelines, Innovative and proactive approach is being adopted by DGQA which includes precise planning, coordination and addressing QA issues with manufacturer in time bound and professional manner, pro-active communication with order placing authority and user.

  (d) By incorporating above methodology, PDI, JRI and Firing at Pokhran of first ten guns were completed within due date and Guns were handed over to Indian Army.

155mm/ 52 Cal. Tracked Self-Propelled Gun- K 9 VAJRA

- ***Training Initiatives:***

  (a) Defence Institute of Quality Assurance (DIQA) carries out training of DGQA officers and officers of other organizations in the field of Quality Management.

  (b) Country vide refresher courses for AHSP and SQAE officer were organized, the curriculum included visit to various factories.

Directorate General of Aeronautical Quality Assurance (DGAQA)

7.24 DGAQA is the Quality Assurance (QA) regulatory authority for Defence PSUs, Ordnance Factories, DRDO etc. and provide QA coverage to Military Aircrafts, Associated Accessories, Air Armaments, Unmanned Air Vehicle (UAV), Missiles etc. during design, development, production, overhaul, repair, defect investigation, up-gradation and modification at various Defence PSU's, Ordnance Factories, DRDO Labs, Oil Refineries & Private Trade Firm's etc. DGAQA also plays vital role in Technical Evaluation, Field Trials, Pre-Dispatch Inspection (PDI) during foreign procurement of Military Aviation stores. DGAQA is a member of Court of Inquiry set up for Accident Investigation of Military Aircrafts. DGAQA is authorized by MOD for capacity assessment and registration of Indian vendors for manufacturing & supply of defence aviation stores to the services. During the year DGAQA has registered 45 firms under different categories. During the financial year 2018-19, DGAQA has provided quality assurance coverage to Military Aviation Stores of the value ₹ 22879.95 crore up to March 31, 2019.

Directorate of Standardization (DoS)

7.25 Since inception, the Directorate of Standardisation is paving way to mitigate proliferation

so as to optimize complete inventory of the three services by means of establishing commonality, duplicity in equipment/components. The assigned duties to the Directorate of Standardisation towards Standardisation and Codification is being accomplished through continual process of formulating new and updating the existing varied Standardisation documents, Codification of items, variety and entry control. In addition with formation of Cyber Security Group of DDP under the Directorate, the Directorate is ensuring implementation of Cyber Security guidelines and policies amongst the DDP organisations. A standards development authority has also been set up to develop defence standards in respect of newer technologies.

Targets & Achievement: Committee of Chairman Standardisation Sub Committee (CCSSC) has target of 1276 Standardisation Documents (113 New & 1163 Revision cases) for year 2018-19. Total of 4870 active standardisation documents have been formulated by Std Group.

The Directorate of Standardisation has implemented globally accepted NATO codification system using advanced web based software for codification and cataloguing of Indian Defence inventory. The new codification tool besides aiding in systematic Codification and Cataloguing of Defence inventory is also enabling distinct visibility of Indian products in International Logistic Systems resulting in their enhanced participation in Global Defence Procurement System. After complying with all the basic requirements of laid down process India has attained the Tier-II member nation status in Allied Committee -135 w.e.f February 1, 2019. This paved the way for issuing India specific Cage Codes (NCAGE) and adoption of foreign NSNs in respect of platforms sourced from all member nations of AC/135. It is also proposed to harmonize joint standards with various guides and processes in use within NATO Codification System.

Directorate of Planning & Coordination

7.26 The Directorate of Planning and Coordination, an attached office of Department of Defence Production, was established in 1964. The Directorate is primarily mandated to establish robust indigenous defence industry, improve domestic production by expediting Indigenization process in defence sector through various enabling policies viz 'Make in India' initiative, liberalization of FDI Policy/ Industrial licensing policy, providing level playing field to private sector, creating defence technical hub and giving preference to procurement from indigenous route. Further, the Directorate strives to foster international cooperation in defence sector and boost export of defence equipment to other countries.

Defence Exhibition Organisation (DEO)

7.27 The main charter of DEO is to organise and co-ordinate Defence exhibitions in India and abroad, primarily with a view to promote export potential of defence oriented products and services, developed and manufactured by the Indian Defence Industry. The exhibitions conducted offer an excellent opportunity to show case the capabilities of the Defence Industry. The shows are conducted on an international level. The forum also facilitates interaction with senior foreign delegations. The primary objective is to promote defence export from both the DPSUs and the Indian industry.

International Exhibitions in India: To provide a platform for the Indian Defence Industry to showcase its capabilities, DEO organises two biennial International exhibitions in India, namely Aero India and Defexpo India. While Aero India is dedicated to the aerospace and aviation industry, the focus of Defexpo India is on land and naval systems.

(a) ***DEFEXPO INDIA-2018:*** The 10th edition of Defexpo India with the theme 'India: The Emerging Defence Manufacturing Hub', was

held from April 11 to 14, 2018 at Kancheepuram, Chennai, Tamil Nadu State. Defexpo India received an overwhelming and unprecedented international response. The exhibition showcased India's emergence as an attractive destination for investment in the defence sector and acted as a platform for alliances and joint ventures in the defence industry. An interactive seminar on the defence procurement procedures and offset policy along with B2B meetings, exhibitors' press conferences, product launches were organised, to bring the participants abreast with the latest developments. This show also attracted an unprecedented network of international government and military agencies. The highlights of the event included:

- Revenue generation of approx ₹ 70.27 crore as against ₹ 82.82 crore in Def-Expo 16.
- Innovations for Defence Exhibitions (iDEX), a scheme of Department of Defence Production, formulated in collaboration with Startup India and Atal Innovation Mission, was launched by Prime Minister on this occasion.
- Defexpo India Pavilion showcased India Public Sector and Private Sector capability in Defence Production with more than 100 indigenously manufactured products like Aakash Missile System, Brahmos etc.
- The Defexpo 2018 also featured for the first time, a combined live demonstration of indigenously manufactured aero, naval and land system.
- Business Seminars and other related events were also conducted which witnessed large business delegates participation. 40 B2B MoUs agreements were signed.
- India Russia Military Industrial Conference was held on the sidelines of Defexpo - 2018 in which 75 Indian Defence Sector Manufacturing company and 28 Original Equipment Manufacturers from Russian Industry. 7 MOUs were also signed for B2B Collaborations.
- 702 exhibitors participated comprising of 542 Indian exhibitors including 160 MSME and 160 International exhibitors. 42 Official delegations including 13 Ministerial delegations participated. Total 284 foreign/official delegates reported participation.
- Over 50 bilateral meeting were held at various levels including by RM.
- Total exhibition space was 2,90,000 Sq ft.
- Over 3.5 lakh people visited Defexpo 2018 and its events. Arrangements for visit to Naval warships were also conducted.
- DRDO organised a Transfer of Technology Mela in which 10 technologies were transferred in an event.

DEFEXPO-2018

(b) ***AERO INDIA-2019:*** The 12th edition of Aero India-2019 with the theme - 'Runway to a billion opportunities', was organised from February 20-24, 2019 at Air Force Station Yelahanka, Bengaluru. The net area as sold during the exposition was 28398 Sqm. The Business Seminars were conducted by CII / SIDM, FICCI, ASSOCHAM, PHD, USIBC, USISPF, Bharat Shakti, Synergy Foundation, Aerospace & Aviation Sector Skill Council. In addition, Ministry of Civil Aviation, Ministry of Commerce & Industry /DGFT, Kerala Govt / KINFRA, MoD / DDP also conducted the Seminars. The Business Seminars was held in the 3 adjacent Seminar Halls at the Aero India venue. Important salient features are:

- Revenue generation of approximately ₹ 133.45 crore as against ₹ 94.19 crore in Aero India 2017.
- Startup were also encouraged during the event. About 450 startups participated in the show.
- Indian exhibitors participation was 238 and 165 Foreign companies participated. International exhibitor increased by 101% from 82 in 2017 to 165 in 2019.
- 63 aircrafts participated in the show.
- 470 B2B meetings were conducted.
- For the first time, Global CEO, Conference was conducted, in which 22 CEOs, (11 Global CEOs and 11 Indian CEOs) participated.
- Conduct of first ever Drone Olympics at Aero India. 121 applications were received and thereafter 58 were shortlisted to participate.
- Several investment decisions/MoUs have been signed by Global and Indian organisations. The highlights of the same include:

  - Bharat Electronics Limited (BEL) and Elettronica SpA (ELT), Italy, have entered into an MoU for joint development, commercialisation and production of new generation Electronic Warfare (EW) surveillance systems.
  - BEL signed an MoU with JSR Dynamics Pvt Ltd (JSR), a Nagpur based start-up company to leverage the individual design and manufacturing capabilities of BEL and JSR to develop weapons and light weight cruise missiles.
  - BEL and Hughes India entered into a Teaming Agreement for design, development, supply, installation, integration and commissioning of Satellite Communication solutions for helicopters.
  - Rafael Advanced Defence Systems presented a $30 million purchase order to ASTRA RAFAEL COMSYS PVT LTD (ARC) for the manufacture, test-before-integration and lifecycle support management for a complete set of the B Net Software Defined Radio system for the Indian Air Force.

- Russian Helicopters Holding Company (a part of State Corporation Rostec) and a number of Indian companies signed five Memorandums of Understanding.
- To boost the tactical capabilities of the Indian Armed Forces, Hindustan Aeronautics Limited (HAL) has awarded Thales a contract to supply 135, 2.75-inch (70-mm) rocket launchers.
- Bengaluru-based aerospace and defence company, Turbo Tech, signed a contract with Safran Helicopter Engines (previously known as Turbomeca) for the supply of Oil Cooling System for its new engine.
- AXISCADES, an engineering solutions company has tied-up with Virtual Reality Media (VRM), a Slovakian technology company which produces flight simulators and training systems and the companies announced the signing of the deal.
- Hindustan Aeronautics Limited (HAL) handed over the first three Advanced Light Helicopters as part of the 22 ALH MK III contract to the Indian Army during the its partnership with the Adani group.
- Hindustan Aeronautics Limited (HAL) signed a Memorandum of Understanding (MoU) with the Central Public Works Department (CPWD) for the execution of the stage 2 works of Infrastructure development works at Green Field Helicopter factory at Bengaluru.

- International participation included Defence Ministers from Spain, Czech Republic, Mauritius and Afghanistan Industry Ministers from Russia, Aerospace Minister from Kazakhstan and Vice Minister from South Korea, Ghana, Foreign Air Chiefs and other foreign dignitaries.

- National Skill Development Corporation (NSDC) Aerospace and Aviation Sector Skill Council (AASSC) in collaboration with Singapore Polytechnic and Singapore-based private sector firm signed an agreement for skilling the Indian youths in the aviation sector by setting up academies in Bengaluru.

- The first time ever following were also conducted during the Aero India 2019:

  - Academic seminars on Regional Air Connectivity by Ministry of Civil Aviation.
  - Pacific area coding and codification seminar.
  - Knowledge seminars by DRDO.
  - Skill Pavilion NSDC under the aegis of Ministry of Skill Development and Entrepreneurship (MSDE) set up an Aero Skill Pavilion. Aero Skill Pavilion housed twenty booths, with had participation from Companies in Aerospace and Aviation domain including related skill training entities

Aero India 2019- Inaugural Ceremony

- First time participation by Airbus 330 Neo, Airbus C-295 Transport Jet, NAL - Saras, Regional Transport Aircraft, HAL-HTT- 40 Basic trainer and HAL-LUH.
- Vintage Display, B-52 Bomber, Boeing and Dakota. Aerobatic display by team Yakovlev from UK and Indian teams Sarang and Surya Kiran also participated.

International Exhibitions Abroad: During the Financial Year 2018-2019, the following international exhibitions had participation from DPSUs, OFB and Private Industries:

(a) ***Farnborough Air show 2018:*** Farnborough Airshow 2018 from July 16-22, 2018 at London, UK. HAL and BDL participated in the show.

(b) ***ARMY - 2018:*** International Military Technical Forum " ARMY" 2018 held from August 21 to 26, 2018 at Moscow, Russia. MDL, BEL, GRSE and HAL participated in the show.

(c) ***AAD 2018:*** AAD 2018 from September 19-23, 2018 at South Africa. HAL, BEL, BEML and BDL participated in the show.

(d) ***DEFPOL 2018:*** DEFPOL 2018 from October 3-4, 2018 at Hanoi, Vietnam. OFB, HAL and BEL participated in the show.

(e) ***Euronaval 2018:*** Euronaval 2018 from October 23-26, 2018 at Paris, France. BDL, GSL and MDL DPSUs participated in the show.

(f) ***Indo Defence Expo:*** Indo Defence Expo in Indonesia scheduled from November 7 to 10, 2018 at Indonesia. BEL, GSL and MDL participated in the show. Economic Advisor and DDG (Export) represented the MoD delegation.

(g) ***EDEX - 2018:*** 1st Egyptian Defence Exhibition (EDEX- 2018) in Cairo, Egypt from December 3-5, 2018. BEL participated in the show.

7.28 ***Working Results:*** The Value of Production and Profit after Tax of Defence PSUs are indicated in the **Table No. 7.1** and **Table No. 7.2** respectively.

Table No. 7.1
Value of Production of Defence PSUs

(₹ in crore)

Name of DPSU	2015-16	2016-17	2017-18	2018-19 Provisional
HAL	17152	17103	17553	18100
BEL	7775	9244	9706	11900
BEML	2740	2624	3227	3450
BDL	4297	5011	4641	3235
GRSE	1661	928	1342	1375
GSL	726	1030	1343	906
HSL	593	629	645	605
MDL	4106	3523	4399	4625
MIDHANI	679	696	698	815
Total	***39729***	***40788***	***43554***	***45011***

Table No. 7.2
Profit after Tax of Defence PSUs

(₹ in crore)

DPSUs	2015-16	2016-17	2017-18	2018-19 Provisional
HAL	1998.00	2616.00	2070.00	2100
BEL	1307.00	1548.00	1399.00	1825
BEML	63.66	84.44	129.45	100
BDL	564.88	524.06	528.15	422
GRSE	162.05	11.47	86.80	105
GSL	62.29	117.40	217.33	132
HSL	19.00	53.77	20.99	44
MDL	568.48	548.99	439.80	524
MIDHANI	119.37	126.31	131.26	131
Total	***4864.73***	***5630.44***	***5022.78***	***5383***

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CHAPTER **8**

DEFENCE RESEARCH AND DEVELOPMENT

8 DEFENCE RESEARCH AND DEVELOPMENT

Pre-induction Trials of Long Range Surface-to-Surface Ballistic Missile 'Agni-5'

BACKGROUND

8.1 DRDO has emerged as one of the premier scientific and technological organisations in the country and has played a major role in the development of state-of-the-art platforms, sensors and weapon systems. The organisation has set its sights on making India self-sufficient in Defence equipments ranging from missiles, radars, sonars, electronic warfare, engineering systems, surveillance & recce systems, communication systems, electro-optics, night vision, information security products to name a few. At the core of its technological strength is its expertise in system design, system integration and testing & evaluation built over the last six decades.

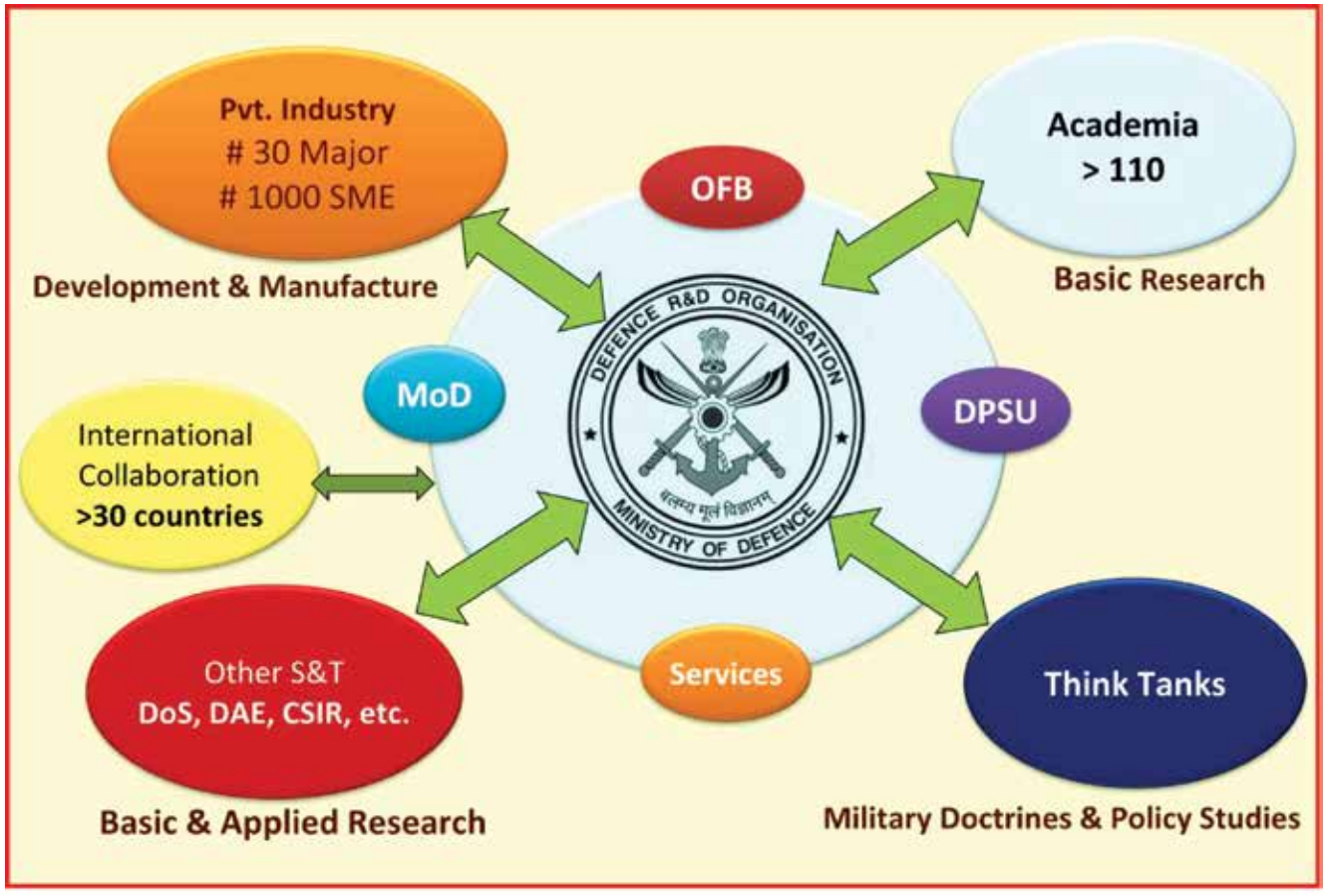
8.2 DRDO's mission essentially covers the following broad activities:

- Design, develop and lead to production of state-of-the-art sensors, weapon systems, platforms and allied equipment for our Defence Services.
- Provide technological solutions to the Services to optimize combat effectiveness and to promote well-being of the troops.
- Develop infrastructure and committed quality manpower and build strong indigenous technology base.
- Support National Cyber Security Architecture – Testing capabilities, security solutions, hardware testing, indigenous network systems, cyber defence tools

8.3 DRDO's major achievements were made possible by working in close synchronization with all its major partners which include tri-Services, industries and academia. Today over 1000 industries including Defence Public Sector Undertaking (DPSUs) and Ordnance Factory Board (OFBs) are vital partners in DRDO's development programmes. In addition, DRDO collaborates with other S&T organisations like Department of Space (DoS), Department of Atomic Energy (DAE) and Council of Scientific and Industrial Research (CSIR) for common requirements and applications. DRDO has also selectively chosen its global partners and has MoUs signed with over 30 countries worldwide for joint collaboration in requisite areas with complementary work share.

DRDO Partners and Linkages are reflected in the chart below:

DRDO – Partners and Linkages



ORGANISATIONAL STRUCTURE

8.4 DRDO is headed by Secretary DD R&D & Chairman DRDO. Dr G Satheesh Reddy has taken over charge as Secretary, Defence R&D, Chairman, DRDO in August, 2018. DRDO labs are grouped into seven technology clusters each headed by a cluster Director General as shown below:

DG (Cluster)	*Laboratories & Establishments*
DG (AERO)	ADE, ADRDE, CABS, GTRE
DG(ACE)	ARDE, CVRDE, DTRL, HEMRL, PXE, R&DE(E), SASE, VRDE
DG (ECS)	CHESS, DARE, DEAL, DLRL, IRDE, LASTEC, LRDE
DG (LS)	DEBEL, DFRL, DIBER, DIHAR, DIPAS, DIPR, DRDE, DRL(T), INMAS
DG (MED &CoS)	ANURAG, CAIR, JCB, MTRDC, SAG, SSPL
DG (MSS)	ASL, DRDL, ITR, RCI, TBRL
DG (NS&M)	DLJ, DMRL, DMSRDE NMRL, NPOL, NSTL

8.5 DRDO headquarters (HQ) at Delhi, which coordinates the overall functioning of the organisation, is an interface between the Government and the cluster HQs and laboratories. There are five corporate DGs to oversee the activities of the corporate HQ.

Corporate Structure of DRDO

DG (Corporate)	Corporate HQ
DG (HR)	Centre for Personnel Talent Management (CEPTAM), Defence Institute of Advanced Technology (DIAT), Defence Scientific Information and Documentation Center (DESIDOC), Human Resource Development (DHRD), Institute of Technology and Management (ITM), Personnel (DOP), Recruitment and Assessment Centre (RAC), Right to Information (RTI) Cell
DG (R&M)	Civil Works and Estates (DCW&E), Finance and Material Management (DF&MM), Management Services (DMS), Parliamentary Affairs (DPA), Planning and Coordination (DP&C), Programme Office (PO), Rajbhasha and O&M, Vigilance and Security (DV&S)
DG (PC & SI)	Industry Interface and Technology Management (IITM), Interaction with Services for Business (DISB), International Cooperation (DIC) and JVs, Low Intensity Conflicts (LIC), SA to Chiefs, Technical Advisors Abroad
DG (TM)	Extramural Research and Intellectual Property Rights (DER&IPR), Futuristic Technology Management (DFTM), Research Boards, Research Innovation Center (RIC), Centers of Excellence
DG (SAM)	Public Interface (DPI), Quality, Reliability & Safety (DQR&S)

8.6 Additionally, DRDO has 3 human resource institutions, 3 certification agencies, 4 autonomous bodies and 1 joint venture under its fold as detailed below.

Human Resource (HR) institutions	1.	Centre for Personnel Talent Management (CEPTAM),
	2.	Institute of Technology Management (ITM)
	3.	Recruitment and Assessment Centre (RAC)
Certification agencies	1.	Centre for Military Airworthiness and Certification (CEMILAC) with associated Regional Centers for Military Airworthiness (RCMAs) for airworthiness products,
	2.	Centre for Fire Explosive and Environment Safety (CFEES) for fire and explosives
	3.	Scientific Analysis Group (SAG) for grading of information security products.
Autonomous bodies	1.	Aeronautical Development Agency (ADA), Bengaluru
	2.	Defence Institute of Advanced Technology (DIAT), Pune (Deemed University)
	3.	Society for Integrated Circuit Technology and Applied Research (SITAR), New Delhi
	4.	Electro Optical Instruments Research Academy (ELOIRA), Hyderabad
Joint venture	1.	BrahMos Aerospace

MANPOWER

8.7 DRDO has a total strength of 24,732 employees, out of which 7,329 are working in Defence Research and Development Services (DRDS), 9,105 in Defence Research and Technical Cadre (DRTC) and 6,255 are in Admin & Allied Cadre.

BUDGET

8.8 For the current financial year 2018-19, DDR&D has been allocated ₹ 17,861.19 crore (BE) which is about 6% of the total Defence Budget. A total of ₹ 9734.45 crore has been allocated under Capital head and ₹ 8126.74 crore under Revenue head.

PROGRAMMES AND PROJECTS

8.9 DRDO projects are categorized as follows:

- ***Mission Mode (MM):*** These are taken up based on Users' requirements with stringent time lines and normally involve more than one lab with Users having a major say in steering the project.

- ***Technology Demonstration (TD):*** These are normally initiated by DRDO as feeder technologies for future or imminent MM projects. The purpose is to develop, test and demonstrate a particular technology.

- ***Science & Technology (S&T):*** These are normally of basic research/applied research type taken up by labs with alignment to future technology needs.

- ***Infrastructure & Facilities (IF):*** Projects which typically involve creation of advanced test & qualification facilities, are taken through IF mode. It is essentially a capital investment which plays a major role in validating the technology/system generated/developed.

- ***Product Support (PS):*** Projects in this category are aimed at upgradation of existing systems in production or maintenance/technical support of the system for a limited period.

- ***User Trials (UT):*** The scope of this category includes conduct of User trials including DRDO support during the trials.

8.10 During the period (January 2018 - March 2019), 87 new projects have been sanctioned at a total cost of ₹ 4,100 crore and 34 projects have been completed at a total cost of ₹ 1,613 crore.

8.11 DRDO currently has 372 ongoing projects (excluding strategic projects) amounting to approximately ₹ 78,135crore (including User share). Out of 372 ongoing projects, 61 large projects (cost ≥ ₹ 100 crore) have a cost of ₹ 70,740crore.

8.12 There are 11 major programmes approved by Cabinet Committee on Security (CCS) amounting to ₹ 54,370 crore (of which DRDO's share is ₹ 24,703 crore). Out of these, four CCS projects are related to design and development of missiles: Long Range Surface-to-Air Missiles (LRSAM) for Indian Navy, Indian Aircraft Carrier (IAC) for the Indian Navy and Medium Range Surface-to-Air Missiles (MRSAM) for Indian Army & Indian Air Force. The CCS projects in the field of Aeronautics are: Light Combat Aircraft (LCA) Air Force Mk-I, LCA Air Force Mk-II, LCA Navy Mk-I, LCA Navy Mk-II, Airborne Early Warning and Control (AEW&C) System, Medium Altitude Long Endurance (MALE) Unmanned Aerial Vehicle 'TAPAS-BH' and Kaveri Engine.

8.13 The year 2018 witnessed a number of significant milestones/achievements in DRDO projects, some of which are detailed in succeeding paragraphs:

Anti-Satellite Missile (Mission Shakti): DRDO on March 27, 2019 successfully conducted an Anti-Satellite (A-SAT) missile test 'Mission Shakti' from the Dr APJ Abdul Kalam Island in Odisha. A DRDO-developed Ballistic Missile Defence (BMD) interceptor missile successfully engaged an Indian orbiting target satellite in low earth orbit (LEO) in a 'Hit to Kill' mode. The interceptor missile was a three-stage missile with two solid rocket boosters. Tracking data from range sensors has confirmed that the mission met all its objectives. The test has demonstrated the Nation's capability to defend its assets in outer space. With this India joins a select group of nations which have such capability.

Ballistic Missile Defence (Programme AD): DRDO has taken up development of two layered BMD programme for defending the vital assets from ballistic missile attacks. The successful demonstration of the BMD system was conducted through two interception trials in 2018 validating all the elements of the BMD systems in an operation scenario. Endo-atmospheric interceptor missile (AAD-26) mission was successfully conducted on August 2, 2018 in combat mode from LC-IV (Kalam Island) against long range simulated targets with a miss distance of ~2 m. Exo-atmospheric interceptor missile (PDV-04) was successfully test-fired from Abdul Kalam Island for the first time during

night on September 24, 2018 against two stage ship launched target missile.

Long Range Surface-to-Surface Ballistic Missile 'Agni-5': During the year Agni-5 was successfully flight tested thrice in January, June & December, 2018. A total of seven flight trials have been conducted and all the missions have been successful meeting the desired range objectives.

Beyond Visual Range Air-to-Air Missile 'Astra': Beyond Visual Range Air-to-Air Missile (BVRAAM) 'Astra' (60 km) possessing high single shot kill probability & making it highly reliable is being developed by DRDO to engage and destroy highly manoeuvring supersonic aerial targets. The missile incorporates many unique features like active radar terminal guidance, excellent electronic counter-counter measure (ECCM) features, smokeless propulsion and process improved effectiveness. A series of flight trials of the missile by IAF were conducted at ITR, Balasore as part of final development trials of the missile in September-October, 2018.

Long Range Surface-to-Air Missile (LRSAM): LRSAM is a joint development programme of DRDO and Israel Aerospace Industries (IAI), Israel for Indian Navy (IN). It has a range of 70 km using dual-pulse rocket motor and active Radar seeker in terminal phase and inertial/mid-course update for guidance. The weapon system would provide a point and area defence for three P15 A ships of Indian Navy against vast variety of aerial threats including fighter aircraft, subsonic and supersonic missiles, etc. Operational Flight Test (OFT-3) was conducted successfully in January 2019 from INS Chennai which proved the Joint Target Coordination (JTC) mode capability of LRSAM weapon system with INS Kolkata & INS Chennai participation. A number of operational missiles have been delivered to the Indian Navy by DRDO. On-Job Training (OJT) to IN personnel on rear-section maintenance at INS Vajrakosh, Karwar was also completed.

Supersonic Cruise Missile 'BrahMos': BrahMos, the world's most formidable supersonic cruise missile is a two stage precision strike weapon. Operating on fire and forget principle, it can be launched from multiple platforms against land and sea targets. Flying at top speed of 2.8 Mach carrying a warhead up to 300 kg, the 3 ton BrahMos is capable of destroying high value enemy targets within shortest possible time. During March, 2018, flight trial of BrahMos missile with indigenous seeker developed by DRDL was completed successfully at Pokhran, meeting all the mission objectives for land target in mono-pulse mode. The missile was successfully test fired twice during May, 2018 from the test range of ITR Chandipur along the Odisha coast to prove the indigenous sub-systems. The missile was also successfully test fired from ITR at Balasore in July, 2018 as part of service life extension programme for Indian Army under extreme weather conditions.

Medium Range Surface-to-Air Missile (MRSAM) for IAF: MRSAM weapon system is a state-of-the-art Air Defence system capable of intercepting aerial targets like fighter aircrafts, helicopter cruise missile up to range of 70 kms. The system is jointly developed by DRDO and IAI, Israel. During the year 2018, qualification of all sub-systems was completed and the weapon system has been made

ready for production.Updated Identification Friend or Foe (IFF Mk-XII) integration with Long Range Detection & Tracking Radar (LBMFSTAR) was carried out during January, 2019. Design Verification Tests (DVT) of LBMFSTAR has been conducted during February, 2019.

Third Generation Helicopter Launch Anti-Tank Guided Missile 'HeliNa': HeliNa is a 3rd generation helicopter launch anti-tank guided missile with Lock-On-Before-Launch (LOBL) capability with imaging Infra-Red for integration on ALH. 'HeliNa' Guided Flight Trials were conducted during August 2018 at Pokhran Field Firing Ranges (PFFR), Rajasthan. Two successful firings were carried out against tank simulator. During the trials, thermal target system (TTS) was successfully tracked from helicopter mounted missiles. During February, 2019, two Programmed Control Flight Trials (PCFTs) were successfully conducted to prove Jet Vane configuration with ground static launcher.

Anti-Tank Missile 'PROSPINA': 'NAG' is a 3rd generation Anti-Tank Missile with 'Fire & Forget' and 'Top Attack' capabilities, which can be used in day and night. It is deployed on a specially modified ICV BMP-2 vehicle called NAG Missile Carrier (NAMICA). Two successful flight trials of 'NAG' were carried out in February, 2018. AoN approval of Defence Acquisition Council (DAC) on April 27, 2018 was obtained for initial production of 293 nos. 'NAG' missiles and 13 nos. NAMICAs. PKT 7.62 mm gun firing trials were successfully conducted from KK Ranges, Ahmednagar during November, 2018. Winter User trials were completed at PFFR in February, 2019.

New Generation Anti-Radiation Missile (NGARM): DRDO is involved in the design and development of NGARM having a range of 100 km. AKU-58 launcher after suitable modification will be used for missile integration on Su-30 MKI aircraft. Successful static firing of integrated P-I & P-II rocket motor was conditioned at high & low temperatures in June & July, 2018 respectively. Captive Flight Trials (CFT) was also successfully conducted from AF Station, Halwara in September, 2018 & January, 2019. Release Flight Trials (RFTs) in point to point mode from Su-30 has also been completed.

Quick Reaction Surface-to-Air Missile (QRSAM): QRSAM weapon system is capable of search on move, track on move and fire on short halts while engaging multiple targets at ranges of about 30 km with two vehicle configuration for area Air Defence. All ground system equipments for the Battery Combat Vehicle (CV) and Support Vehicles, Mobile Launcher Vehicle (MLV), Battery Multi-Function Radar Vehicle (BMFRV), Battery Surveillance Radar Vehicle (BSRV), Battery Command Post Vehicle (BCPV), embossed canister and Transport and Loader Vehicle (TLV) has been realized. During the period (January, 2018 – March, 2019), four developmental flight trials were conducted wherein all objectives were met. Weapon system integration trials & performance evaluation is under progress at Kolar.

Man-Portable Anti-Tank Guided Missile (MPATGM): MPATGM is a 3rd generation ATGM with 'Fire & Forget' and 'Top Attack' capabilities, which can be used by day and night. Design & development of MPATGM weapon system is undertaken for deployment by Infantry and Parachute Battalions of the Indian Army. It is intended to be a replacement for 2nd generation MILAN & Konkurs ATGMs, in service with the Indian Army. Two PCFTs were carried out successfully over 2500m and 1300 m in 'Top Attack' mode in September, 2018. During March 2019, Guided Flight Trials (GFT) was completed in which top attack capability was established at required range.

Solid Fuel Ducted Ramjet (SFDR) Technology for Air Launched Tactical Missiles: The state-of-the-art air-to-air missile powered with 'SFDR' propulsion technology is a joint development project between DRDO and Russia. The missile is designed with an advanced propulsion system and is configured with nozzle-less booster, thrust modulation system and boron based sustainer to deliver specific impulse of 1000 - 1200 sec in ramjet mode. The missile can hit the air targets in the ranges from 70 - 340 km in the power 'ON' mode. During the flight test conducted on May 30, 2018, nozzle-less booster technology was successfully demonstrated in the mission for the first time in the history. In the flight tested conducted on February 8, 2019 from ITR, Chandipur all objectives were met towards realisation of the SFDR propulsion system consisting of nozzle less booster, solid fuel ramjet sustainer with air intakes & fuel controller and insulation system.

Stand-off Anti-Tank (SANT) Guided Missile: DRDO is involved in design, development and technology demonstration of Stand-off Anti Tank (SANT) Guided Missile. During the year SANT mission-01 campaign was conducted during May, 2018 at Jaisalmer, Rajasthan during which successful firing of SANT from Mi-35 helicopter platform was demonstrated. SANT RFTs with mathematical model of seeker was also conducted at Pokhran in November, 2018 wherein safe separation from Mi-35, transfer alignment algorithm, launch release sequence and latex/roll control auto pilot algorithms were successfully demonstrated. Carriage trials of SANT missile with MMW seeker have also been successfully completed.

Smart Anti Air Field Weapon (SAAW): SAAW is long-range, stand-off, precision air-to-surface weapon (125 kg class) capable of engaging ground targets. Impact trial of SAAW was conducted in May, 2018 to access penetration capability of SAAW in full configuration mode. Three tests of SAAW were also successfully carried out during August, 2018 from IAF aircraft at Chandan range. The weapon has undergone 8 developmental flight trials till date.

Surface-to-Surface Short Range Tactical Ballistic Missile 'Prahaar': DRDO successfully test fired tactical ballistic missile 'Prahaar' from ITR Chandipur, Odishaon September 20, 2018. The demonstration test launch was successful which was witnessed by Chief of Army Staff.

X Band Seeker: DRDO has successfully carried out the sea trials of X Band Seeker at Vizag with INS Astradharini as carrier and Multipurpose Support Vessel SCI Saraswati as target in March, 2018.

User Trials of Inducted Missiles: The following trials were carried out by Users:

- Agni-1 February 6, 2018, October 30, 2018
- Agni-2 February 20, 2018
- Prithvi February 7, 2018, February 21, 2018
- Dhanush February 23, 2018, November 3, 2018
- Akash October & December 2018

Subsonic Cruise Missile 'Nirbhay': Nirbhay is India's first indigenously designed and developed long-range subsonic cruise missile having 1000 km range and capable of carrying up to 300 kg warheads. The system incorporates the Ring Laser Gyroscope (RLG) based inertial navigation system as primary navigation and Micro Electro-Mechanical System (MEMS)-based inertial navigation system as secondary navigation system. The integration of NGL-06 missile sections is in progress and section level vibration test is being carried out. The system would be ready for flight trials by mid-2019.

Light Combat Aircraft (LCA) 'Tejas': LCA Tejas is India's first indigenous multi-role fighter aircraft designed and developed to meet the requirements of the IAF. It is an advanced technology, supersonic, light weight, all-weather, multi-role fighter aircraft designed for multiple combat roles. As on date, 4428 flight tests on Tejas aircraft (including more than 700 during January, 2018 – March, 2019) have been completed. Declaration of Full Operational Clearance (FOC) and handing over of formal FOC certificate along with Release to Service Document (RSD) to the Chief of Air Staff was conducted on February 20, 2019 during Aero India 2019. IAF Ex Gaganshakthi requirements for simulated mode firing of R-73E and Derby Missile were completed. Trials to assess landing and takeoff characteristics were conducted at IAF base, Jamnagar. Night flying assessment was carried out in dark phase on LSP5, PV6 and SP6 aircrafts. Ground refuelling tests with IAF IL-78 tanker was completed at Gwalior. Air to air refuelling was successfully demonstrated on LSP8 aircraft at IAF base Gwalior. Trials of Phase-2 air to air refuelling were flown towards clearing envelope expansion. LSP8 participated in DefExpo Flypast as part of larger formulation of HAL aircraft.

Airborne Early Warning & Control (AEW&C) System: The AEW&C system consists of sensors mounted on an aircraft (Embraer-145) for locating and providing early warning to air and ground stations of airborne & sea surface targets, and hostile emissions. AEW&C in Initial Operational Capability (IOC) configuration was accepted by IAF and inducted at the IAF in February, 2017 and has been deployed at IAF base Bhatinda for operational exploitation. During the period (January, 2018 – March, 2019), Acceptance Test of AEW&C Phase-I induction of AEW&C Aircraft #1135 was completed. A total of 153 sorties for a total duration of 338 hours 45 minutes were completed including 69 mission sorties for a duration of 174 hours. The system has been formally inducted into IAF under IOC configuration in September, 2018. During

February, 2018, testing and performance optimization in the presence of multiple radars was carried out on ground for indigenous ESM system for EMB aircraft. System installation, integration and ground testing on aircraft were carried out and flight clearance was obtained. Two sorties were conducted and analysis of the test results is in progress. AEW&C aircraft participated in Republic Day fly-past & also participated in Aero India 2019. Apex Board has accepted that programme mandate has been met and recommended for technical closure.

Medium Altitude Long Endurance (MALE) Unmanned Aerial Vehicle (UAV) 'TAPAS BH': TAPAS-BH, a multi-mission UAV is being developed with an endurance of 24 hours to carry out the intelligence, surveillance and reconnaissance (ISR) roles for the three Armed Forces. It is being designed to operate at 30,000 ft Above Mean Sea Level (AMSL) altitude and is capable of carrying Electronic Warfare and Electro-Optic & Synthetic Aperture Radar (EO & SAR) payloads. It can carry a variety of other payloads weighing up to 350 kg. The flights with High Power Engine (HPE) commenced in February, 2018. During January, 2018 – March, 2019, 39 flight trials using airframe AF5 (with HPE) have been completed (total 50 flight trials completed since the maiden flight in November, 2016). Flight trials on airframe AF6 also commenced in January, 2019 and as on date, 9 flight trials have been conducted. Indigenous SATNAV INS system, indigenous payloads (GPA Mk-IV, MREO) and imported payloads (SATCOM, LREO, ELINT& SAR) has also been tested during these trials. The payload was able to localize radars successfully.

TAPAS BH

Controlled Aerial Delivery System (CADS): Airdrop technology is a vital capability for rapid deployment of payloads to specific rendezvous points. A flight trial of CADS-1T in manual control mode was successfully conducted in June, 2018 from Bari Drop Zone, Dholpur. As per the specifications of Human Space Program (HSP) of ISRO, there is a mandate for the safe recovery of the astronauts after completing their space mission on their way back to Earth. This system has been successfully developed. The system has been proven at different stages such as aircraft drop test, Crew Module Atmospheric Re-entry (CARE) Mission and finally the critical test on emergency situation called PAD ABORT test. The most recent PAD ABORT test conducted at SHAR by ISRO on July 5, 2018 has proven the technology for meeting the emergency situation at the launch pad itself.

Small Turbo Fan Engine (STFE): DRDO is involved in the development of technologies for indigenous STFE. It is proposed to develop 5 engine sets for development testing and 3 engine sets for Nirbhay integration with development partner M/s Brahmos Aerospace Thiruvananthapuram Limited (M/s BATL). Five prototypes (T1, T2, T3, T4 and T5) have been realized. High altitude start trials and endurance tests were completed.

Advanced Towed Artillery Gun System (ATAGS): DRDO has taken up a programme to design and develop 155 mm X 52 cal Advanced Towed Artillery Gun System (ATAGS) to meet the future requirements of Indian Army. The state-of-the-art indigenous large caliber Gun system will be capable of achieving firing ranges of the order of 40 km for ERFB Boat Tailed & 48 km for ERFB Base Bleed ammunition. During the period (January, 2018 – March, 2019), mobility and high altitude firing trials of the gun systems (G-1 & G-2) were completed at LMDR Menia Firing Ranges, Sikkim. AHS and Ballistic trials of Gun were completed in September, 2018 which was followed by trials conducted at Pokhran, Rajasthan during October, 2018 wherein the communication testing

between Battery Command Post (BCP) and Gun was successfully conducted using Voice Data Communication Unit (VDCU) over line and radio media. All Fire Mission Commands were successfully transmitted between BCP and Gun. Contract for 6 additional gun systems was signed with the developmental partners. Gun G-1 and G-2 were showcased during live & static demonstration at DefExpo held in Chennai in the presence of Prime Minister & Defence Minister. Gun G-3 integration trials were completed in February, 2019. Track trials of Gun G-4 in towing mode are in progress at VRDE, Ahmednagar. Both the gun systems are being made ready for conduct of User Assisted Technical Trials (UATT).

Guided Pinaka Rocket System: Guided Pinaka Rocket system is being developed by DRDO to engage targets from 20 km to 80 km range with an accuracy of 60-80 m. The rocket uses propulsion system developed for Pinaka Mk-II rocket and has canard based aerodynamic control and Inertial Navigation System (INS)/Global Positioning System (GPS) based guidance. The system was successfully test fired from PXE, Chandipur in May, 2018. Dynamic trials of Guided Pinaka rocket were successfully conducted in March, 2019 at PFFR wherein total 3 nos. of guided Pinaka rockets were fired for assessment of accuracy on ground.

Ammunitions:

- ***125 mm FSAPDS (500 DoP) Ammunition:*** DRDO is developing 125 mm FSAPDS Mk-II ammunition having 500 mm Depth of Penetration (DoP) for T-72 & T-90 Tanks. It is two piece ammunition which is fired through 125 mm smooth bore gun. During the year, consistency trials of the ammunition were carried out at PXE, Balasore.

- ***105 mm HEEB Ammunition for IFG:*** During the year, performance demonstration of 105 mm HEEB ammunition was successfully conducted at School of Artillery, Deolali Camp, Nasik wherein a total 28 no. of HEEB ammunition & 20 no. of TNT ammunition were fired in direct & indirect mode.

- ***120 mm FSAPDS Mk-II Ammunition:*** DRDO has successfully developed 120 mm FSAPDS Mk-II Ammunition, User trials have been conducted and all the parameter set by User have been met. User has accepted this ammunition having enhanced lethality in RHA plate & placed an indent of Qty. 8000 rounds on OFB. Presently bulk production of this ammunition is in progress at OFB.

500 Kg General Purpose Bomb: DRDO is involved in the development of aircraft bomb which can provide good blast and fragmentation effects and limited concrete penetration capabilities, impact/impact delay fuze, suitable package for the tail unit and rolling rings for the bomb. During the period (January, 2018 – March, 2019), RTRS trials to assess the penetration capability were completed. Suitable penetration was achieved at strike velocity against ASR requirement.

500 kg Pre-Formed Fragmentation Bomb: DRDO has designed the 500 kg pre-formed fragmentation bomb with steel spheres as fragments. The bomb is designed to be compatible with Russian as well as Jaguar aircrafts

by providing dual suspension lugs of 250 mm and 14" spacing. During the period (January, 2018 – March, 2019), static fragmentation trials were conducted at TBRL Chandigarh in which lethality of the bomb was established and found to meet ASR requirements.

New Family of Munitions (NFMS): Six types of munitions are being designed and developed by DRDO viz. Soft Target Blast Munition 'NIPUN', Anti-Tank Point Attack Munition 'VIBHAV', Anti-Tank Bar Munition 'VISHAL', Directional Fragmentation Munition 'PARTH', Anti-Tank Influence Munition 'PRACHAND' and Jumping Fragmentation Munition 'ULKA' to improve the existing munitions and enhance its performance. During the period (January, 2018 – March, 2019), PSQR based User Trials of PRACHAND was completed.

Main Battle Tank (MBT) 'Arjun': MBT Arjun Mk-II has been designed and developed incorporating 84 improvements (73 tank fittable) over and above MBT Arjun Mk-I. During the year, two MBT Arjun Mk-1A prototypes were positioned at PFFR. After completion of DRDO trials, MBT Arjun Mk-1A P1 was offered for User trials which were completed in December, 2018.

Arjun Armoured Recovery and Repair Vehicle (Arjun ARRV): ARRV is intended for carrying out recovery, repair and replenishing functions pertaining to MBT Arjun in operational areas under a wide variety of field conditions. During the period (January, 2018 – March, 2019), 1st prototype was demonstrated during DRDO internal trials at PFFR and 2nd prototype is under developmental trials duly incorporating improvements emanating from DRDO trial at M/s BEML. AoN for Qty 10 nos. of ARRV has been obtained.

Electric Gun and Turret Drive System (ELEGANT): DRDO is involved in the design and development of a gun control system with electric drive for Armour Fighting Vehicles (AFVs). Seven prototypes are to be developed in the project including two for pilot production/ production reference. During the period (January, 2018 – March, 2019), CAN based Gyro prototype has been developed successfully. The system will be made available for bench trials by mid-2019.

Composite Sonar Dome: DRDO has developed the first indigenous composite sonar dome for P15A class ship. By this development, India joins a select group of nations with capability of realizing large composites structure with multi-functional requirements, complex geometry and high structural rigidity with acoustic transparency. During the period (January, 2018 – March, 2019), successful sea trials of the sonar dome were conducted successfully on INS Chennai.

46m Military Load Class (MLC-70) Modular Bridge: DRDO has developed a mechanically launched single span 46m MLC-70 modular bridge with bridge length variable from 14m to 46m in step of 6.5m. Technical trials of the system have been completed. The equipment has completed all the crucial parameters of Qualitative

Requirements (QR). User trials of the system were successfully completed during March, 2019.

Unexploded Ordnance Handling Robot (UXOR): UXOR is remotely operated platform capable to handle and defuse unexploded ordnance weighing up-to 1000 kg from a distance of 1 km Line of Sight (LoS). Three UXOR systems have been realized. During the period (January, 2018 – March, 2019), trials of small and medium size mortar (81 mm dia.) using UXOR manipulator were carried out and configuration of cutting-surface laid conditions were checked and tried out. Internal trials of long range communication system on UXOR were also carried out.

TRAWL Assembly for T-72/T-90 Tanks: TRAWL assembly has been developed for creation of vehicle safe lane in a minefield using trawls, plough and electromagnetic device. The equipment has been designed as a blast resistant system using DRDO developed high nitrogen stainless-steel material. The equipment has successfully undergone DRDO trials at operational locations such as desert, semi-desert and planes.

65 hp Rotary Engine and 180 hp Indigenous UAV Engine: During the period (January, 2018 – March, 2019), high altitude test were completed at Leh (11,400 ft) and Changla (17,600 ft) for 65 hp Rotary Engine and 180 hp indigenous UAV Engine. Flight trials of 65 hpWankel engine were also carried out.

Counter Mine Flail: Counter Mine Flail has been developed for creation vehicle safe lane (VSL) in a composite minefield. The design philosophy has been to disintegrate the buried mines and thus creating a VSL of 4.5m irrespective of types of mines/fuzes. The system is currently undergone technical trials.

Wheeled Armour Platform (WhAP): WhAP is a multi-utility armoured platform with modular design, configurable for variety of combat and combat support roles up to 26 T Gross Vehicle Weight (GVW). During the period (January, 2018 – March, 2019), more than 900 km running completed on AP-II during trials conducted in the NE region.

Advance Light Towed Array Sonar (ALTAS): ALTAS is an efficient sensing system for detection, localization and classification of submarines operating especially in the below surface layer ocean conditions. It is useful in Anti-Submarine Warfare (ASW) operations and is the apt sensor for warships to locate silent submarines capable of launching high speed torpedoes. User Evaluation Trials of the system onboard INS Sharda has been completed satisfactorily.

USHUS – 2: USHUS-2 is an integrated submarine sonar, designed and developed by DRDO for the EKM class of frontline submarines of Indian Navy. USHUS-2 is a state-of-the-art upgrade of USHUS sonar operational onboard five EKM submarines. Design and development of the engineered model of USHUS-2 was completed at NPOL. Four production grade systems have been productionized by M/s BEL, Bengaluru. All the four systems are under various stages of installation onboard submarines. During the period (January, 2018 – March, 2019), installation, setting to work and Sea Acceptance Trials (SATs) Phase-1 of the first USHUS-2 installation onboard INS Sindhukesari was successfully completed at Russia.

Portable Diver Detection Sonar (PDDS): DRDO is involved in the design and development of a PDDS system that

is capable of detecting small targets such as divers and diver delivery vehicles in and around harbours and ships in harbor/anchorage, thus enabling its protection. The system will be deployable and retrievable as and when required. During the period (January, 2018 – March, 2019), one PDDS system and PDDS deployment system has been developed. Field evaluation of the deployment system will be by early 2019.

Air-borne Sonar for Coastal Security (ASCS): DRDO is involved in the development of a qualified Low Frequency Dunking Sonar (LFDS), an airborne sonar system for the ALH Mk-III helicopters being acquired by the Navy. The system installed on helicopter platform would provide Airborne ASW capability for Naval operational scenarios. During the period (January, 2018 – March, 2019),contract for development of 3 LFDS systems, airworthy certification and onboard installation was placed on M/s BEL, Bengaluru. The system integration started at HAL in November, 2018. UETs will be carried out from March, 2019 onwards.

Supersonic Missile Assisted Release of Torpedo (SMART): DRDO has taken up a project to develop and demonstrate a missile assisted release of light weight anti-submarine torpedo system for ASW operations far beyond torpedo range (50-650 km). During August, 2018, pneumatic ejection test of TAL dummy torpedo from canister was carried out at 150 bar which established the design of safe shear pin failure. Ejection speed of torpedo was also estimated during the trials.

Advanced Light Weight Torpedo (ALWT): ALWT is an anti-submarine torpedo launched from ship, helicopter or fixed wing aircraft. ALWT has dual speed capability and endurance of 25 km at low speed (25 knots) and 12 km at high speed (50 knots). During the period (January, 2018 – March, 2019), discharge test of 70 kW battery was conducted with full torpedo assembled. Static test was conducted at sea off Visakhapatnam to prove the operation of recovery aids used in ALWT. Automated electrical firing of ALWT from single tube launcher and dynamic sea trials was conducted wherein the torpedo made full run as per the mission sequence.

Advanced Light Weight Torpedo (ALWT)

Land Based Prototype (LBP) for Air Independent Propulsion (AIP): DRDO is involved in the development of indigenous technologies for the development of a LBP for AIP system for Indian submarines in collaboration with M/s L&T, Mumbai as Lead System Integrator (LSI) and other industry partners viz. M/s Thermax, Pune and M/s Centre for Development of Advanced Computing (M/s CDAC), Thiruvananthapuram. The successful development of the LBP will ultimately lead to realization of fuel cell based AIP for P-75 class (Scorpene) submarine, which would result in additional underwater endurance of the submarine at nominal power consumption level. It aims to package the AIP plant sub-systems, reactant tanks and waste tanks inside the simulated hull section of the P-75 submarine. During the period (January, 2018 – March, 2019), all piping modification design/drawing were completed and approved. Equipment mounting

and hull modification was also completed. Endurance mode trials are expected in June, 2019.

System Definition & Engineering of DRDO AIP System on P-75 Submarines and Development of Deliverable LOX System: The primary objective of the project is to develop the optimized design of Phosphoric Acid Fuel Cell (PAFC) system, hydrogen generators, power conditioners, control systems, heat exchangers, DM water system and auxiliaries of AIP system and qualify the same for P-75 platforms. The project is progressing in collaboration with M/s DCNS France. During the period (January, 2018 – March, 2019), major safety reservation data was submitted and accepted. Naval Group France cleared all blocks and declared sufficiency to take-up detailed design phase.

Internal EW System for MiG-29 Upgrade Aircraft (D-29 System): D-29 is an integrated EW system for warning and jamming that encompasses RWR, ECM and Electronic Support Measures (ESM) functions and utilizes state-of-the-art active phased arrays for selectively jamming the multiple threat radars. Lab testing of the system was carried out under different emitter scenarios encountered during multi emitter trials at Gwalior in February, 2018. Joint evaluation of software ver 2.7 of D-29 with ELISRA & ASTE reps, on the Rig with Dynamic Threat Simulator (DTS) and in anechoic chamber was completed. CEMILAC certification was also obtained for the software. During the year 2018, a total of eight sorties have been flown so far for multi-emitter trials and the performance in terms of DF, detection and jamming is satisfactory. Tests & measurements of radar parameters for ascertaining on-board radar compatibility were carried out at AF station in January, 2019.

Internal Radar Warning Jammer (RWJ) System for Jaguar DARIN III Upgrade Aircraft (D-JAG System): D-JAG is an integrated EW system for radar warning and jamming that encompasses Radar Warning Receiver (RWR) and Electronic Communication Measures (ECM) functions. The system intercepts and identifies airborne, ship-borne and ground based radars used for target acquisition, tracking and missile guidance. During the period (January, 2018 – March, 2019), preliminary system ATP for D-JAG system and ESS of Core EW Unit (CEWU) was completed.

Digital Radar Warning Receiver (Dhruti): DR118 digital RWR is a state-of-the-art, six channel digital RWR for Su-30 MKI. It is an airborne, tactical EW system that performs the function of creating situational awareness to the pilot about ground-based, air-borne or ship-borne emitters present in the scenario. During the year, RWR was tested on Su-30 integration rig to verify the compatibility of the digital RWR with the existing avionic architecture of Su-30 MKI. Ground testing of RWR against fly catcher, SRE (S-band), SRE (L-band), Bharani Mk-I and AEW&C radars was also carried out. Ground integration on Su-30MKI and ground acceptance tests was successfully completed.

Software Defined Radio (SDR): DRDO, in a consortium approach with C-DAC and WESEE as development partners and BEL as the production partner, is working towards the development of a family of network-enabled, interoperable and modular SDRs having frequency in the range of 3-2000 MHz. The SDRs being developed to provide wireless secure communication capability to both mobile and fixed forces as required by the Indian Navy are: Naval Combat (SDR-NC), Tactical (SDR-TAC), Airborne (SDR-AR), Manpack (SDR-MP) and Hand held (SDR-HH). All developmental activities for realization of 5 Form Factors have been completed. During the period (January, 2018 – March, 2019), Acceptance Test (ATP) and User Evaluation Trials of SDR-TAC were completed after fitment on five Naval ships at Vizag. V/UHF, HF and L-bands ground and flight trials of

SDR-AR were completed. After DAC approval and security evaluation, CNC has been completed for SDR-NC by Users.

Digital Tropo Scatter/LOS Communication System for IAF: Tropo scatter communication system communicates microwave radio signals over considerable distance. During the period (January, 2018 – March, 2019), field evaluation of Tropo OFDM Modem with production ready 2 KW SSPA, diplexers and EOW at IAF Tropo stations were carried out. OFDM Tropo Modem performance testing over Tropo Channel was also conducted.

EW Systems 'Samudrika' for Capital Ships, Aircrafts and Helicopters for Indian Navy: DRDO has taken up the development of a family of seven EW systems which includes three ship-borne systems (Shakti, Nayan&Tushar) and four air-borne systems (Sarvadhari, Sarang, Sarakshi & Nikash). During August, 2018, liquidation of observations of User Evaluation Trials (UET-II) was conducted. Strengthening of 3 Bay DF Antenna Array was carried out as per structural analysis of the antenna array. Limited Qualification Tests have commenced. Safety of flight and functional tests on aircraft has also been conducted for 'Sarvadhari' system.

Vehicle Mounted ELINT System: Field trials of vehicle mounted ELINT system were conducted at ARC facility near Bhuj against signals of interest to ARC. All the signals belonging to ground, airborne and ship borne radars were intercepted successfully.

Critical Sub-systems for Integrated EW System 'Samyukta' (SAMISHTI): The first integrated indigenous EW programme 'Samyukta' was successfully designed, developed and commissioned by DRDO in the Indian Army in 2008. DRDO has recently taken a new project for upgradation of critical sub-systems for COM segment of 'Samyukta' and establishment of reference COM entity work posts (HF, VUHF, SALPJ& RDF). During the period (January, 2018 – March, 2019), DRDO evaluation of the sub-systems was completed and functional demonstration of ISHF, LPJ, SAJ, RFDS, Entity Controller Software & Model Unit Rack Automated Test Equipment (MURATE) to the Army Users was completed.

Project HIMRAJ for Indian Air Force: The role of the system is to intercept, monitor, analyse and locate adversary's radar transmission in 70 MHz to 40 GHz band. DRDO is responsible for the system design, development of critical sub-system, and realisation of a truncated reference version of the engineered system for Ground Base Mobile ELINT System (GBMES), which are being pursued towards production at BEL. Production order for 6 nos. of GBMES systems on M/s BEL is under execution. During the period (January, 2018 – March, 2019), trials were conducted at AFS, Bidar. On-site acceptance tests of GBMES are in progress at IAF site in Bhuj.

Sights for Corner Shot Weapon System (CSWS): CSWS is a special purpose weapons & ammunition that can fire around corners and for the use of Special Forces under Low Intensity Conflict (LIC) operations. User demonstration along with firing trials was conducted during May, 2018 for day and night sights for both pistol & under barrel grenade launcher (UBGL) versions of CSWS.

Athermal Laser Target Designator: Development of compact, light weight and power efficient diode pumped Laser Target Designator based on Athermal Laser technology has been completed and demonstrated. The system will be used for futuristic requirements of precision semi-active laser guided munitions.

Border Surveillance System (BOSS): DRDO has completed the design and development of BOSS equipped with advanced image processing features for hassle free surveillance and powered with hybrid power source. It eases the work of patrolling by automatically detecting the intrusion, if any. It has 20 km remote operation capability. It provides electronic surveillance solution for high altitude border areas exposed to sub-zero temperature. Two systems have been installed and are under User exploitation. Phase-II of User Readiness Review was carried out.

Air Defence Fire Control Radar (ADFCR) 'Atulya': ADFCR 'Atulya' in conjunction with anti-aircraft guns, forms a ground based air defence system whose main purpose is effective point defence against all air threats at short and very short ranges during day and night. During the period (January, 2018 – March, 2019), DRDO evaluation of the radar system was completed and integrated test firing of ADFCR with guns and targets were carried out at GFFR, Gopalpur. DRDO firing trials were completed in October, 2018 at Gopalpur.

Air Defence Tactical Control Radar (ADTCR): ADTCR has been developed for Army AD as a successor to existing Indian Doppler Radar (INDRA) and P19 radars for surveillance detection, tracking and Identification of Friend/Foe (IFF) of aerial targets and transmission of data to multiple Air Defence command posts/weapon systems. During the year, DRDO internal evaluation of ADTCR system was completed. All the PSQR parameters were complied and verified by demonstration/analysis. The system is ready for User trials.

Active Electronically Scanned Array Radar (AESAR) 'Uttam': AESAR 'Uttam' is an airborne fire control radar for our indigenous fighter aircraft LCA 'Tejas'. It is a multi-mode radar which can be configured for fitment on different airborne platforms. Shake down sorties were completed in January, 2019 on modified executive Jet hired. Indigenous AESA radar integration and EMI/EMC tests on LCA 'Tejas' LSP2 aircraft are nearing completion and flight evaluation is planned shortly.

Laser Threat Detection & Decoy System for Protection of High Value Assets (LTDDS): Field testing of engineering units of laser weapon system (LWS) and master controller were carried out for decoying of laser seeker under various test conditions.

Directed Energy Laser Systems (DELS): DRDO is involved in the development of 10kW proof-of-concept directed energy system against UAVs like target and establishment of critical technologies of precision tracking/pointing and laser beam combination. During the period (January, 2018 – March, 2019), tests for detection and tracking of mini drone (hexacopter) with Battle Field Surveillance Radar (BFSR) and cuing to 10 kW DELS were carried out at ATR, Chitradurga. Testing of radar interfacing with 10 kW DES was carried out with 10 kW DES radar interface simulator and Air Defence Fire Control Radar (ADFCR) 'Atulya' at BEL, Bengaluru. Track acquisition, tracking and laser pointing of 10 kW Anti-UAV Laser Weapon (AULW) system were carried out on flying DRONEs at CHESS site up to the range of 0.7 km.

S-band Digital Multimedia Broadcast (DMB) Terminal for Satellite Communication (AMBAR): AMBAR is ANURAG's handheld Multimedia Broadcast Receiver Terminal for GSAT-6 Satellite and supports different data rates of content with maximum data rate of 2 Mbps. AMBAR's content server and AMBAR's modulator are setup at GSAT-6 Satellite Hub located at DEAL, Dehradun. During June, 2018, the AMBAR terminals have been demonstrated at EETSU, Signal Intelligence for broadcasting as well as content-on-demand feature at a rate of 350 kbps.

Ground based High Power Microwave (HPM) Directed Energy Weapon System: DRDO has taken up a project to develop a HPM system of RF power in S-band which will be affecting drones at the distance of 5 km. During June, 2018, indigenous Marx generator was tested up to 300 KV, 20 Hz and excellent performance was obtained.

Indian Maritime Situational Awareness System (IMSAS): IMSAS is being developed by DRDO which incorporates comprehensive situational picture based on Indian Navy's requirements. IMSAS Build 1.0 has been deployed across Indian Navy MOC/Op centers at Delhi, Mumbai, Visakhapatnam, Kochi, Port Blair, Chennai, Goa and Karwar.

VerifY Organize Maintain Analyze (VYOMA): DRDO has taken a project to build an easy to use information repository of 'Signal Intelligence Reports' and 'Signal Intelligence Summaries' with semantic querying facilities, social network analysis, spatial and temporal visualization over digital maps. VYOMA Build 1.0 has been deployed at User premises and User training conducted for 22 personnel at Delhi.

Chaff Cartridges for Defence Application: DRDO is involved in indigenous development of chaff cartridges to bridge technology gap in the field of chaff cartridges development. Chaff is one of the most widely used and effective expendable electronic counter measure devices. User trials for fitment and inventory check of indigenously developed Chaff cartridge 118/1 on Jaguar Darin-II aircraft was successfully completed at ASTE, Bengaluru in July, 2018. User trials for safe ejection of chaff from indigenously developed Chaff cartridge 118/1 on Jaguar Darin-II aircraft and envelope clearance trials in sub-sonic, super-sonic range & maneuverability was successfully completed at Air Force station, Gwalior in August, 2018. Efficacy checks against Mirage-2000 (Air-to-Air, X Band) in different configurations of Nose-on, sideways (beam forming) and tail-on are underway at AF Station, Ambala.

Cold Isostatic Pressing Technology for Manufacture of Fused Silica Radomes for Missile Application: DRDO has carried out an innovation driven R&D and developed a most sophisticated technology based on Cold Isostatic Pressing (CIP) and sintering route for manufacture of fused silica radomes for the first-time in the country for missile application. The CIPedradomes met all the

property requirements for use in missiles and have made the Astra flight release test successful.

NBC Permeable Suit Mk V: NBC Permeable Suit developed by DRDO is based on state-of-the-art technology of activated spherical carbon beads sandwiched between the fabric layers. The bulk production, test and evaluation of 50,000 nos. of NBC Suit Mk V and NBC socks Permeable Suit against the Army order worth ₹ 97.87 crore have been completed.

Telemedicine System: Telemedicine system has been successfully developed by DRDO for far-flung/land locked areas. The system has been accepted by Indian Navy for installation across Naval platforms (63 Ships, 12 Submarines, 21 Remote locations, 6 Island locations and 4 Hospitals - Total 106 nos.).

Individual Under Water Breathing Apparatus (IUWBA): User Evaluation Trials (UET) of IUWBA was conducted in January 2018 at Bengaluru and during February, 2018 at Armed Corps Centre and School (ACC&S), Ahmednagar. DAC on September 18, 2018 has cleared the induction of 2430 nos. of the system for use by T-90 tank crew of the Indian Army.

Integrated Fire Detection & Suppression System (IFDSS): User trials as per trial directive for Integrated Fire Detection & Suppression System (IFDSS) for T-72 tank were conducted at MFFR, Suratgarh during July/ August, 2018.

Army Wargaming Simulation System (SAMAR): SAMAR is a computerised wargaming system on a Corp canvas to train Commanders & staff of Indian Army at Division, Brigade and Battalion level, in planning and conduct of offensive & defensive operations over plains/ desert/ semi-desert terrain of 400 km x 400 km. The system has been developed and integrated at ISSA based on the QR of the Indian Army. The joint testing by ISSA & WARDEC at WARDEC RTI has been done. Testing of all functional abscessions (FAs) with corrected ATP observations have been completed in January, 2019. Integration of VIOP solution with SAMAR is also completed. Fielding of SAMAR system in Army establishment started after final ATP in March, 2019.

8.14 *CORPORATE INITIATIVES*

Services Interaction: Major systems developed/to be developed by DRDO and Acceptance of Necessity (AoN) accorded for induction during the period January, 2018 – March, 2019 include: Nag missile system, vertically launched SRSAM, Advanced Towed Artillery Gun System (ATAGS), New Family of Munitions – 'VIBHAV' & 'VISHAL', mountain foot bridge, anti-thermal anti-laser smoke grenade for AFVs, unit maintenance vehicle (UMVs) for MBT Arjun, Advanced Torpedo Decoy System 'Maareech', ground based systems for AWACS, P-16 heavy drop platform & parachute system, digital instant fire detection & suppression system (IFDSS), individual under water breathing apparatus, EON 51 for Teg & Talwar classes of ships, supersonic cruise missile 'BrahMos', multi mode hand grenade etc. at a total cost of ₹ 9517.63 crore.The production value of DRDO developed systems (inducted and approved for induction) today stands over ₹ 2.73 lakh crore.

DRDO has established mechanisms for regular interaction with the Services to boost up the induction of indigenously developed systems and increase self-reliance of the Armed Forces which is achieved through Annual Joint Reviews between Secretary DD R&D and Chief/Vice Chiefs of Staff of Air Force, Army and Navy; Quarterly Interaction Meetings (QIMs) with the line Dtes of Army; Quarterly Progress Reviews (QPRs) with Air Force; Annual Synergy Meetings (IN-DRDO) with Navy and Biannual Reviews conducted at the VCOAS/DCOAS level for the Army. A new initiative has been taken and three batches of DRDO scientists (>200 scientists) underwent internships with IA units/ formations.

Industry Interface: DRDO has promulgated Transfer of Technology (ToT) guidelines/SOPs to provide transparent system for ToT to industries with an emphasis on level playing field for DPSUs/OFs/PSUs and private industries. Recently launched user friendly portal has brought more transparency and clarity for the industry entrepreneurs. The benefits of partnering with DRDO have been realized by the Indian industries. During the period January, 2018 – March, 2019, 116 Licensing Agreement for Transfer of Technology (LATOTs) were signed. Formal ToT handing over ceremonies were held in the presence of Mantri during Vendor Development Meet at Chennai and DefExpo 2018 at Chennai.

The export potential of DRDO developed systems has also increased. The Indian industries have been directly receiving export orders/ Request for Proposal (RFP) for DRDO developed products from foreign countries. DRDO inputs were provided for 102 NOCs for export of Defence products.

Technology Development Fund (TDF) has been implemented by DRDO to promote public and private sector industries especially MSMEs that may work in collaboration with the academia or research institutions to carry out innovation, R&D for realization of products as per Services requirements. 4 projects have been sanctioned and awarded to the industries against the requirements of tri-services, approximately 1800 industries, 390 academic institutes, 587 experts has been registered and brainstorming workshop at various locations had been conducted for the feasibility study for the Round 3 projects.

Participation in International Exhibitions: During the period January, 2018 – March, 2019, DRDO participated in more than 20 National/ International exhibitions showcasing DRDO's technologies at various forums. Major ones being DefExpo 2018 at Chennai, Indian Technology Congress (ITC) at Bengaluru, Exhibition at Chief's Conclave of BIMSTEC countries at Pune, India International Science Festival (IISF) at Lucknow, ARMY-2018 at Moscow, Russia, IDEF - 2018 at Jakarta, Indonesia and EDEX 2018 at Cairo, Egypt.

International Cooperation: During the period January, 2018 – March, 2019, DRDO has conducted regular annual bilateral Defence R&D meetings with USA, UK, Russia and Singapore. DRDO jointly conducted a workshop on C4ISR Technologies with the US DoD in August, 2018. Some strong possibilities for cooperation leading to possible information exchange and project agreements have been identified during the workshop. DRDO hosted foreign visits including NDC delegations at DRDO HQ and DRDO labs and held major technology show at DefExpo 2018 and Aero India 2019. DRDO explored co-operation in Defence R&D with African nations and an MoU concerning co-operation in Defence R&D was signed with Nigeria. Project Agreements were signed with Japan, USA and Russia. DRDO participated as a part of Intra-Ministerial Working Group (IMWG) under DGFT, Ministry of Commerce on matters relating to import/ export of SCOMET items. DRDO actively participated in multilateral regimes which enable India's entry in Australia Group and Wassenar arrangement. DRDO also participated as part of the Technical Expert Meeting at the MTCR, Certain Conventional Weapons Session. DRDO also participated in the Industry Outreach programs conducted in conjunction with MEA and DGFT for harmonization of SCOMET list and Wassenar arrangement.

Academia Interaction: DRDO provides support to academia to carry out directed research in the identified research thrust areas related to defence applications through advanced technology centers created across India. As on date, 5 centers are operational viz. Advance Centre for Research in High Energy Materials (ACRHEM), Research and Innovation Centre (RIC) at IIT Madras, JC Bose Centre for Advance Technology (JCBCAT) at Jadavpur University, Bi-nodal Centre of Propulsion Technology (CoPT) at IIT-Bombay & IIT Madras and DRDO-IIT Delhi, Joint Advanced Technology Centre (JATC) at IIT Delhi. Currently, >110 projects at a total

cost of ₹ 463.09 crore are being executed through these centers of excellence. Technology for Fault Tolerant & Trusted Platform developed by RIC was delivered to RCI and ADRDE for relevant application on December 13, 2018

38 projects costing ₹ 30 crore were sanctioned to various academic institutes through the extra mural (ER) initiative of DRDO and 76 projects were sanctioned at a total cost of ₹ 27 crore to various academic institutes through the four Research Boards (Aeronautics, Naval, Armaments & Life Sciences) functioning under DRDO.

Intellectual Property Rights (IPR): 170 IPR applications (including 10 in foreign countries) were filed. 77 patents (including 5 in foreign countries) were granted during the period (January, 2018 – March, 2019). In addition, 12 copyrightsand 12 designs were registered in India. In an effort to promote IPR awareness among DRDO scientists, an advanced workshop and five IPR awareness programmes were held during the period in different DRDO laboratories.

Implementation of Government Initiatives: Annual and five year action plans for 'Swachh Bharat' has been prepared and the activities are being pursued as per the plan e.g. cleanliness drive, tree plantation etc. International Yoga Day was celebrated across all labs. As a tool for promoting Digital India, E-procurement across labs have been actively taken-up, E-ticketing through Defence Travel System have been implemented and online review meetings for critical projects are being undertaken through video conferencing (VC) between labs and HQ wherein ~100 meetings are being held on VC every month. On October 15, during Dr. Kalam anniversary celebrations, DRDO launched a new web initiative "Dare to Dream" for drawing in budding innovators. The portal is now in full operation with over 500 registrations in this short period. Giving an impetus to the mission of 'Make in India' initiated by the government, workshops on the theme are being organised by DRDO labs. Steps have also been taken for initiatives pertaining to 'Minimum Government, Maximum Governance' in an integrated manner. DRDO was awarded one of the best performance awards in 2018 based on e-tendering under Central procuring category.

8.16 ***DRDO celebrated its 60th Anniversary by organising several events:*** DRDO Cyber Challenge, DRDO National Level Essay Competition, DRDO@60 Mobile app, DRDO Robotics and Unmanned Systems Exposition (DRUSE), Navrachna: Brochure, Movie Making. DRDO is steadfast in its journey towards achieving self-sufficiency in Defence requirement. With its commitment to fulfil the requirement of advanced weapon systems and platforms for Armed Forces supported with contemporary technology, this was a year of successful trials.

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CHAPTER 9

INTER SERVICE ORGANISATIONS

9 INTER SERVICE ORGANISATIONS

9.1 The following inter-Service organizations function directly under Ministry of Defence:

(i) Military Engineer Services (MES)

(ii) Armed Forces Medical Services (AFMS)

(iii) Directorate General Defence Estates (DGDE)

(iv) Office of the Chief Administrative Officer (CAO)

(v) Directorate of Public Relations (DPR)

(vi) Services Sports Control Board (SSCB)

(vii) Armed Forces Films and Photo Division (AFFPD)

(viii) National Defence College (NDC)

(ix) School of Foreign Languages (SFL)

(x) History Division

(xi) College of Defence Management (CDM)

(xii) Defence Services Staff College (DSSC)

(xiii) Ministry of Defence Library (MDL

(xiv) Army Purchase Organization (APO)

MILITARY ENGINEER SERVICES (MES)

9.2 Military Engineer Services (MES) is one of the largest construction and maintenance agencies in India. It is responsible for creating the strategic and the operational infrastructure other than major roads, as also the administrative habitat for all three Services and the associated organisations of the Ministry of Defence. It provides engineering support to various formations for Army, Air Force, Navy, Coast Guard, Ordnance Factories and Defence Research & Development Organisation (DRDO).

9.3. The MES functions under the overall control of the Engineer-in-Chief (E-in-C) at the Army Headquarters, who is the adviser to the Ministry of Defence and the three Services Chiefs on all facets of works related issues. MES has a total annual budget of approximately 20000 crore. MES has also been supporting military diplomatic initiatives by creating infrastructure abroad for friendly foreign Governments/ countries. The MES organization, comprising of proficient personnel who are deployed across the length and breadth of the country at remote locations in all types of terrain and inhospitable climatic conditions, has been playing an important role in empowering the combat effectiveness of the Armed Forces.

Annual Major Works Programme (AMWP)

9.4 ***AMWP:*** In Financial Year (FY) 2017-18, AMWP for the three Services including Coast Guard works costing ₹ 14968 crore were listed, against a ceiling of ₹ 11625 crore, out of which works costing ₹ 10784 crore were sanctioned for execution.

9.5 ***Budget:*** In FY 2017-18 under Capital Head a budget of ₹ 6609 crore was allotted to the three Services including Coast Guard and Married Accommodation Project (MAP) works, out of which, the total expenditure carried out by MES was ₹ 6480 crore. Under Revenue Head a budget of ₹ 9432 crore was allotted for all three Services including Coast Guard. The total expenditure under this head was ₹ 9093 crore.

9.6 In FY 2018-19, AMWP for the three Services including Coast Guard works costing ₹ 5754 crore were listed against ceiling of ₹ 5158 crore, out of which works costing ₹ 3050 crore was sanctioned for execution.

9.7 ***Performance Budget 2018-19:*** In FY 2018-19 under Capital Head a budget of ₹ 7311 crore was allotted to the three Services including Coast Guard and MAP works, out of which the total expenditure carried out by MES was ₹ 7314 crore. Under Revenue Head a budget of ₹ 9368 crore was allotted for all three Services including Coast Guard. The total expenditure under this head was ₹ 9323 crore.

Important projects under progress

9.8 ***Modernisation of Central Ordnance Depots (COD) Agra and Jabalpur:*** As part of overall "Modernisation Drive", Army Ordnance Depots are being upgraded with Modern Infrastructure and Automation. Cabinet Committee on Security (CCS) approved Modernisation Project of CODs Agra and Jabalpur on April 11, 2007 for an amount of ₹ 751.89 crore. The work, originally to be executed by Defence Research & Development Organisation (DRDO), was transferred to MES in March 2008. The modernisation project primarily comprises of construction of PEB warehouse buildings equipped with integrated storage and retrieval system, Mechanized Handling Equipment including allied services and administrative/ Other Than Married (OTM) buildings.

9.9 ***Infrastructure development in Eastern Command:*** Cabinet Committee on Security (CCS) accorded approval for ₹ 9243.64 crore in 2010 for infrastructure development in Eastern Sector. Out of these, works costing ₹ 7374.70 crore are being executed by MES for which specially empowered Command Chief Engineer (CCE) organisations were raised. The scope of work includes permanent defences and habitat for troops, communication network and other strategic infrastructure.

9.10 ***Solar Photo Voltaic (SPV) Projects by MES:*** In the first phase MES has been entrusted for provisioning of 150 Megawatt (MW) of Solar Power Plants across 134 locations of Army, Navy and Air Force in the country on behalf of Ministry of Defence. Against this, 156 MW of SPV works are under implementation by the MES. While projects of 28.26 MW capacity have already been completed, works up to 104.31 MW capacity are under various stages of implementation.

9.11 ***Married Accommodation Project (MAP) Works:*** In Phase-II a total 69992 Dwelling Units (DUs) at a cost of ₹ 13681.90 crore were sanctioned out of which MES is carrying out works costing ₹ 3500 crore. 55134 DUs have been completed and overall 93% progress has been achieved.

9.12 ***Major Initiatives/ Decisions/ Policies:*** The following major initiatives/ decisions/ policies have been undertaken/ issued which will have great impact on the functionality and performance of the organisation:

(a) ***MES Organisation and Officers Establishment 2017-18:*** Three Additional Director Generals (ADGs) have been newly raised/ renamed/ relocated/ disbanded:

(i) ADG (Projects) raised at Chennai by disbandment of ADG (Ordnance Factory, Defence Research & Development Organization), Secunderabad.

(ii) ADG (North East India (NEI) raised at Guwahati by suppressing post of ADG (Arbitration).

(iii) ADG (North) raised at Jammu by suppressing post of ADG (D&C), Pune.

(b) Revision of Norms of Maintenance of Roads completed.

(c) New Construction Technique (Engineering, Procurement & Construction) in the MES adopted.

(d) In continuing with the task of empowering MES functionaries with enabling provisions, several key policy changes are under consideration to meet contemporary challenges. Implementation of Green Building Norms with additional 10% plinth area rates and minimum three star rating has already been sanctioned. This is a positive step towards sustainable development of infrastructure in future. MES is also undertaking several measures in the field of energy conservation, use of new and renewable energy and green technology. In an effort to reduce the national carbon footprint, 150 Mega Watt Solar Energy Power projects are being undertaken. To augment the energy conservation efforts measures such as Light Emitting Diodes (LEDs) lighting and GRIHA norms are being incorporated in all new projects.

9.13 ***Achievements/ Milestones***

(a) ***National War Memorial and National War Museum:*** The proposal for construction of National War Memorial and National War Museum for at approximate cost of ₹ 500 crore was approved by the Cabinet on 18 December 2015. The works on the National War Memorial commenced in February 2018. Construction was completed and the National War Memorial was dedicated to the Nation by Prime Minister on February 25, 2019.

(b) ***New infrastructure in the North East Sector:*** In order to support and enhance the operational readiness of Armed Forces against the emerging challenges, as part of Phase 1 of Infrastructure Development in North East, seven Advance Landing Grounds (ALGs) and helipads were constructed on fast track. Phase 1 was completed by March 31, 2018 at an approximate cost of ₹ 1200 crore.

(c) ***E-tendering and E-procurement:*** MES has implemented e-tendering and e-procurement at pan-India level. MES has been awarded the Best Performance Award by National Informatics Commission (NIC) for their e-portal amongst various Central/ State Government Departments and Public Sector Undertakings.

(d) ***New Website for the MES:*** A new website for the MES has been developed and launched by the Defence Secretary on June 28, 2018. Website is the platform for all MES units pan India and is a repository of important policies and circulars, in addition to publication of Notice Inviting Tenders by MES Units/ Establishments.

(e) ***Light Emitting Diode (LED) Installation:*** Out of total 86.96 lakh light points LED installation at 39.13 lakh light points (45%) have been completed by May 2019. A saving of ₹ 114.28 crore is expected on completion of 100% LED-installation.

(f) Works at Ordnance Depot Fort Allahabad for Kumbh Mela-2019 & Ardh Kumbh Mela were conducted in Sangam area from January 15, 2019 to March 5, 2019. MES conducted number of tasks including approach to Akshay Vat, secured passage throughout the fort which required detailed survey, planning and coordination with various civil and military agencies. The work was completed by January 9, 2019 and inaugurated by Hon'ble Chief Minister of Uttar Pradesh on January 10, 2019.

(g) Several projects have been completed by MES during this period which include Cadet Mess

at RIMC, ACC Wing accommodation at Indian Military Academy, KLP location at Bhaderwah, KLP Phase III of Ladakh Scouts Regimental Centre, Anti hijack control infrastructure at Port Blair etc.

(h) Software Applications 'Sarvatra e-Admin Portal', 'Dak/ File Management System' and 'Library Management System' were successfully developed in house and deployed so as to enhance overall administrative efficiency.

ARMED FORCES MEDICAL SERVICES (AFMS)

9.14 AFMS provide dedicated, dependable and comprehensive health care to defence personnel and their families. Medical services are also provided to personnel of para-military organizations, while posted in the field and other Central Police/ Intelligence organizations and General Reserve Engineering Force (GREF) Units, operating in the disturbed and forward areas of the country. The medical care is also provided to ex-servicemen and their dependents within the country. During natural calamities, disasters and operational areas, it also serves civilian population.

9.15 The AFMS consist of the Medical Services of the Army, Navy and Air Force and the Directorate General, Armed Forces Medical Services (DGAFMS). Each Medical Service is under a Directorate General Medical Service (DGMS) in the rank of Lt General or equivalent. The DGAFMS, who heads the Service, is also medical advisor to the Ministry of Defence and the Chairman of the Medical Services Advisory Committee. AFMS include officers of the Army Medical Corps (AMC), AMC (Non-Tech), the Army Dental Corps (ADC) and the Military Nursing Services (MNS). There are 132 Armed Forces Hospitals. The authorized strength of AMC, ADC, MNS and AMC (NT) is 7268, 735, 5321 and 373 respectively.

9.16 ***Important decisions/activities undertaken during the year:***

(I) Commission in AFMS:

(a) ***Grant of Short Service Commission (SSC) through open market in the Year 2018 from Civil Sources:*** 353 Medical Officers (MOs) (Male -214 and Female – 139) have been granted SSC till date.

(b) ***Grant of Short Service Commission/ Permanent Commission to Cadets of AFMC, Pune:*** A total of 107 cadets (Permanent Commission-50, Short Service Commission-57) from AFMC, Pune have been granted PC/SSC in AFMS during the year 2018 (Male – 87 and Female – 20).

(c) ***Grant of Short Service Commission through Civil PG entry in the year 2018:*** 19 MOs (Male – 10 and Female -09) have been granted SSC during the year 2018.

(d) ***Grant of Departmental Permanent Commission to Short Service Commissioned Officers:*** 41 serving Short Service Commissioned officers (Male – 30 and Female -11) have been granted Departmental Permanent Commission during the year 2018.

(e) ***Grant of SSC in AMC (NT) to JCOs/ORs:*** 12 JCOs/ORs of AMC (NT) have been granted Short Service Commission during the year 2018.

(II) Armed Forces Medical College, Pune provides training to under graduate, post graduate Medical and Nursing students with assured career prospects in the Defence Services:

(a) ***AFMC Undergraduate Admissions:*** During the year, after due approval from Ministry of Defence & Medical Council of India (MCI), undergraduate seats at AFMC were increased from 135 to 150. 25,662 candidates got registered for admission to AFMC Based on merit, 1806 candidates were called for interview. 115 boys and 30 girls were finally selected and admitted to MBBS course. 05 candidates from Friendly Foreign Countries were allotted MBBS seats at AFMC

(b) ***PG Admissions:*** 200 serving officers were selected for Post-Graduation Courses in various disciplines at AFMS institutions in 2018. Out of these, 179 officers were selected for MD/MS/DMM and 21 officers for Diplomat of National Board (DNB) in various specialties at AFMS teaching institutions. 8 candidates from Friendly Foreign Countries, Nepal & Bhutan, were also allotted MD/MS seats.

(III) ***Modernization/Infrastructure in AFMS:***

(a) DGAFMS has provided standardization, provisioning and procurement of medical stores for modernization of the entire Armed Forces Medical Services and Medical units which provides quantum improvement of diagnostic, therapeutic and specialized services to the combatants, their dependents and Ex-Servicemen.

(b) ***An innovative mobile health app by the Indian Air Force (IAF):***

(i) On the occasion of 86th anniversary, the Indian Air Force has launched an innovative mobile health App named 'Med-Watch' in Civil domain in keeping with the Prime Minister's vision of 'Digital India, Ayushman Bharat and Mission Indradhanush'.

(ii) 'Med-Watch' is the first mobile health app in the three Armed Services launched by Air Chief Marshal BS Dhanoa PVSM AVSM YSM VM ADC, Chief of the Air Staff, on Air Force Day at New Delhi on October 8, 2018. The app was also displayed and showcased to Prime Minister of India at Air House in the evening. The app is available on www.apps.mgov.gov.in.

(c) ***E-Vetting of Medical Boards:*** e-Vetting of aircrew upgradation medical boards is being conducted at Medical Boarding Centres since October 8, 2018. A total of 275 medical boards have been e-vetted till date (October 31, 2018). By implementing e-vetting procedure the board gets approved in two days. This has saved 20 flying days per aircrew and an overall of 5500 flying days till May 2019. This one step has significantly contributed to an early return of Trained Young Pilots on Ground (TYPOG) to cockpit duties.

(d) ***Procurement of medical equipment:*** The massive drive for bulk procurement of the essential lifesaving and regular use of medical equipment across various Armed Forces hospitals has been a force multiplier and has had salutary impact on the patient care

services and all clientele satisfaction indices.

(e) ***Procurement of Medical Ambulance:*** Delivery of Medical Ambulance 4x4, Quantity 679 & Medical Ambulance 4x2, Quantity 149 through Capital route and also the Revenue procurement of Ambulance 2.5 Ton, Quantity (497) has been completed with vehicles being released to units as per existing deficiency. Procurement of Light Ambulance 4x4 (816) through Revenue route is under progress.

(IV) ***Automation of Armed Forces Medical Stores Depot (AFMSD & Supply Chain Management):***

(a) ***Telemedicine:***

I. ***Telemedicine Phase I:*** Radio based telemedicine to connect forward isolated posts to Regimental Aid Post (RAP) has been planned with Defence Bioengineering and Electrochemical Laboratory (DEBEL). Training on handling of telemedicine equipment i.e. Portable Physiological Vital Para Monitor (PPVPM) was conducted successfully and observed that Battle Field Nursing Assistants can use the equipment confidently.

II. ***Telemedicine Phase II:*** Headquarter Integrated Defence Staff (Med) is collaborating with DEBEL for providing telemedicine facilities in remote area connecting 10 RAPs to 150 GH in Northern Command using Army Intranet. Patient-monitoring system was tested in field conditions w.e.f. June 19-24, 2018. The equipment was tested by connecting five Infantry Battalion RAPs in 25 Infantry Division (AOR) through Army Intranet to 150 GH. It involved real time video interfacing of personnel deployed in the Infantry Battalions with specialists at 150 GH. It also included the real time transmission of critical medical parameters like Pulse, BP, Temp, Respiratory rate, Oxygen saturation of Blood (SPO2) ECG and data from Digital Stethoscope, Derma-scope and Auro-scope. The quality of transmission was excellent and the utility of the solution appreciated by one and all. Trial Report has been perused by the Chief of Integrated Staff to Chairman COSC (CISC) and he has recommended for its use in 3, 4, 33, 14, 15 and 16 Corps in the Army.

(b) ***Indian Space Research Organisation (ISRO) Telemedicine nodes:*** DECU, ISRO, Ahmedabad in collaboration with HQIDS (Medical) has provided 20 Telemedicine Nodes through Satellite Communication to Armed Forces Medical Units. Presently all nodes are functional and provide Continuous Medical Education Programs. DECU, ISRO, Ahmedabad has sanctioned additional Telemedicine Nodes for AFMS, which are in the process of installation. Procurement order has

already been placed for establishment of additional Telemedicine Nodes for Army, Navy & Air Force under ISRO telemedicine project by Director DECU, ISRO, Ahmedabad.

(c) ***Common Drug List 2018:*** Prior to 2016, two separate lists of drugs, CDL (Common Drug List) for serving personnel and EDL (Essential Drug List) for Ex-servicemen Contributory Health Scheme (ECHS) beneficiaries were existing. Hence a Board of Officers (BOO) was convened by competent authority after taking into consideration the inputs from AFMS procuring agencies, World Health Organization (WHO) Essential Medical Lists (EML), National Lists of Essential Medicine (NLEM) and CDL/EDL of the other Government Organization and one Common Drug List 2018 (CDL) has been formulated by the BOO which has been duly approved by DGAFMS.

(V) ***Foreign Aid provided to Friendly Countries:*** DGAFMS provides humanitarian aid to the Friendly Foreign Countries as per the demand received from Ministry of External Affairs through Ministry of Defence. Medical Stores amounting INR 16.88 crore were procured for issue to the following countries:

(i) Tajikistan
(ii) Seychelles
(iii) Common Wealth of Dominica
(iv) Kenya
(v) Maldives
(vi) Kyrgyzstan
(vii) Afghanistan

(VI) ***Important activities undertaken during the year:***

(a) ***New Armed Forces Medical Research Committee (AFMRC) Projects:*** 165 new AFMRC projects were approved during the 56th AFMRC Meeting held at Pune in February, 2018. Research funds were allotted to both the new and ongoing projects to the total of ₹ 8,35,00,000/-.

(b) 53 AFMRC projects were completed during the period from October 1, 2017 to September 30, 2018.

(c) The 39th `Senior Naval Medical and Dental Officers Conference was conducted on October 5, 2018 at Mumbai, attended by all Senior Medical and Dental Officers of the Navy and various issues of medical administration along with those concerning advancement and improvement of medical services were deliberated upon.

(d) ***Ex-Milan 2018:*** 3 Rapid Action Medical Team (RAMT) was deployed at Port Blair for a multinational Naval exercise from March 5-12, 2018. Warships from 20 countries participated in the exercise.

(e) ***Ex-Samvedhna-2018:*** 3 RAMT was deployed at Trivandrum to participate in Ex-Samvedhna, a multilateral air exercise (MAE) from March 14-16, 2018.

(f) ***Health awareness rally:*** A health awareness car rally was held from March 14 to April 7, 2017 for spreading awareness on Organ Donation &

Diabetes Mellitus amongst families and serving personnel. The participants were motivated to pledge their organs for donation. The rally covered 6,500 Km across all commands covering 13 stations of the country.

(g) ***Human in Space Program (HSP):*** Prime Minister of India formally announced the Indian 'Human in Space Program' (HSP) from the ramparts of the iconic Red Fort on August 15, 2018. Institute of Aerospace Medicine (IAM), Indian Air Force is the nodal point for Aerospace Medical consideration and also a point of interaction with ISRO. A team from Vikram Sarabhai Space Centre visited IAM on July 24, 2018. IAM will be involved in HSP mainly on following issues:

(a) Astronaut Selection & Training

(b) Human Engineering support to development of Crew Module

(c) Space Suit

(d) In-flight & Post-flight monitoring of Astronauts.

(VII) ***International Cooperation:***

(a) Sri Lanka College of Military Medicine hosted "2nd Annual Academic Session at Colombo, Sri Lanka from March 23 -25, 2018. The theme of the session was "Military Medicine: A disciplinary Approach to Contemporary Medicine". DGAFMS & Sr Col Comdt delivered the keynote address on the topic 'Combat Medical Support : Changing Paradigms & Evolving Strategies' during the conference.

(b) 6th Course on Military Medicine Ethics in Times of Armed Conflict organized by International Committee of Military Medicine (ICMM) was held at Spiez, Switzerland from August 26 - 30, 2018.

(c) 4th International Committee of Military Medicine (ICMM) Pacific Asian Nations (PAN) Asia Pacific Congress Military Medicine was held at Tehran, Iran from October 12-15, 2018. The theme of the congress was "The Future Horizon of Military Medicine".

(d) Israeli Female Combatant Medical Symposium was held at Israel from October 23-25, 2018.

(e) The International Committee of Military Medicine (ICMM) is an international, intergovernmental, neutral and non-political organization which was created in 1921 with the Secretariat General located in Belgium. The primary mission of the ICMM is to maintain and strengthen the bonds of cooperation and knowledge between the Armed Forces Medical Services of all Member States. There are currently 117 member nations in the ICMM from all five continents and India has been permanent member of the ICMM. The 42nd World Congress of the ICMM was organized by the Armed Forces Medical Services at New Delhi from November 19-24, 2017 under the aegis of Ministry of Defence. Director General of Armed Forces Medical Services (DGFMS) & Sr Col Comdt was designated as the Chairman of ICMM till May 2019. A three member AFMS delegation led by the DGAFMS attended the Meeting

of the International Working Group of the ICMM at Brussels, Belgium from October 24 - 26, 2018.

(f) The XXXIV Annual Conference on Marine Medicine & Allied Sciences was conducted at INHS Asvini on October 6 - 7, 2018. Delegates from the following three countries participated in the Conference.

(i) Thailand

(ii) Brazil

(iii) Bangladesh

(g) ***Defence Cooperation with Maldives:*** Indian AFMS team comprising 2 Medical Officers and 4 paramedics joined the Maldives National Defence Forces (MNDF) Medical Services on September 9, 2012 to assist in establishment and opertionalisation of 25 bedded Senahiya, MNDF Hospital at Male. Since then the deputation of Medical Team is being continued by deputing Medical Officers and paramedics on yearly basis.

(h) ***Deputation to Saudi Arabia:*** A Team comprising of 7 Medical Officers was deputed to Saudi Arabia from July 17, 2018 to September 24, 2018 to provide medical assistance for Haj pilgrimage.

(i) ***India Tajikistan Friendship Hospital (ITFH), Tajikistan:*** A 50 bedded permanent hospitals was established at Qurghon Teppa, Tajikistan in 2012. 3rd Rotation of the medical team has been deployed at ITFH upto March 26, 2020.

(j) ***Medical Treatment of Armed Forces Personnel of Friendly Foreign Countries:*** Medical treatment provided to the armed forces personnel of the following friendly foreign countries:

S. No	Country	Sanction given for medical treatment in 2018-19	Treated till May 2019
(i)	Afghanistan	140	78
(ii)	Bangladesh	96	56
(iii)	Myanmar	02	02

(k) ***3rd Cycle of ADMM Plus EWG on Military Medicine (MM) (2017-19):*** India & Myanmar are Co-chair countries for the 3rd Cycle of ASEAN Defence Ministers Meeting Plus Experts' Working Group (ADMM Plus EWG) on Military Medicine (MM) (2017-19). In this connection, India is hosting major events at Lucknow under the aegis of DGMS (Army). It is a matter of pride for Army Medical Corps that the Field Training Exercise (FTE) in March 2019 becomes the first ever standalone FTE on Military Medicine under the ADMM Plus umbrella and is being projected as the signature event.

(VIII) ***Training***

(a) ***Training of non-medical Officers and Sailors:*** In order to impart knowledge of Basic Life Support (BLS) and First Aid to all Indian Naval personnel, a policy has been promulgated for BLS and First Aid training to be conducted for all non-medical Officers and Sailors of the Indian Navy. This training envisages improving combat casualty

care for all afloat as well as ashore units of the Indian Navy. The training is to be conducted annually under the aegis of respective Command HQs and during inspections, a minimum of 10% of the Ship's Company is to be assessed for the same.

(b) ***Training of Aviation Medicine Specialists in Flying (Pilot Physician Program):*** IAF has now started the process to revive the 'Pilot Physician Programme'. After due approval, Aviation Medicine Specialists will undergo flying training similar to ab initio IAF Pilots and will earn Wings. Thereafter, as a physician trained as a pilot he would be able to help solve complex aero medical issues that confront aviation. The USAF (US Air Force) currently has a similar program. The overall impact of this program will enhance flight safety.

(IX) ***DISASTER RELIEF & UN MISSIONS:***

(a) The Medical Stores provided for various disasters, UN Missions and other foreign missions in the year 2018-19 are given below:

(i) For UN Mission to various countries (Congo, South Sudan)

(ii) Expeditions:

a) Indian Army Expedition to Mt Mamostong Kangri Ladakh

b) Mt Apsarasas-II

c) Mt Bhagirathi-II

(b) ***Rescue Mission at Theni District:*** Station Medical Centre (SMC) Air Force Station, Sulur was tasked to participate in a rescue mission involving 30-40 casualties, due to an accidental fire in the forest of Kurangani hills of Theni District, Tamil Nadu on March 11, 2018. A medical team from 5 Base Repair Depot (5 BRD) Sulur was detailed for the mission to setup the Base medical camp at the foot hills of Kurangani hills. The team provided great support in loading and unloading of casualties for speedy evacuation to Madurai hospital.

(c) ***Aid to Civil Authority, Kerala Flood Relief in August 2018***

(i) ***Army:*** Columns moved in aid to civil authority, to carry out relief and rescue operations in Kerala, with personnel of AMC embedded. Medical Teams were deployed for medical relief Operations. About 4870 patients were provided medical relief by the teams.

(ii) ***Air Force:*** The Indian Air Force launched "Operation Karuna" for rescue and medical relief in areas ravaged by devastating floods on August 18, 2018. 10 Mobile Medical teams were immediately deployed across worst affected areas of Kerala. By the time the last IAF medical team was withdrawn on September 14, 2018, over 7300 patients had been treated across flood ravaged Kerala.

(iii) ***Navy:*** 'Operation Madad' was launched on August 16, 2018 to provide relief to the people affected by floods in Kerala. All out efforts were put in to ensure that the medicines/ consumables were issued expeditiously as emergent indent including its transportation to Kerala in time.

(d) ***International Humanitarian Assistant and Disaster Relief (HADR) effort: 'Op Samudra Maitri':*** In the wake of the devastating earthquake and subsequent Tsunami that hit Sulawesi province of Indonesia on the early morning of September 28, 2018, 'Operation Samudra Maitri' was launched by the Indian Army. The medical team left on October 2, 2018 0730 hrs. & reached Palu (Indonesia) on October 5, 2018 at 1610 hrs., via Chennai. Team established Advance Dressing Station (ADS) at Balaroa, Palu (Indonesia) and started managing earthquake victims.

(X) ***Major Achievements***

(a) ***Raksha Mantri Trophy for Best Command Hospital:*** The Raksha Mantri Trophy for the best Command Hospital of the Armed Forces for the year 2017 was presented to Command Hospital Western Command, Chandimandir by the Raksha Mantri in the presentation ceremony on April 23, 2018.

(b) ***Medical Camps:***

(i) ***Bhadarwah:*** A medical camp was conducted at Bhadarwah from June 9 to 10, 2018, inaugurated by Dr Jitender Singh, Union Ministry of State (I/C), North-East Region. About 5388 civilians attended the camp.

(ii) ***Dharchula:*** A medical camp was conducted at Dharchula from September 17 to 18, 2018, inaugurated by the Raksha Mantri. 1691 civilians attended the camp.

(c) ***National Mental Health Programme:*** The National Mental Health Programme the existing infrastructure under 'Section B' of NMHP has been approved by the Government. The Centre of Excellence in Mental Health, INHS Asvini has been inaugurated on July 18, 2018 by Director General Medical Services (Navy). The various academic programmes are under advanced stages of approval from the respective institutions/ regulating bodies.

(d) ***Commissioning of Naval Hospital Karanja as INHS Sandhani:*** The commissioning of Naval Hospital Karanja as INHS Sandhani was held on December 24, 2018 with the Flag Officer Commanding-in-Chief, Western Naval Command as the Chief Guest. There are now ten Naval Hospitals.

(e) ***Commissioning of NIDS (Mumbai) as INDC Danteshwari:*** The Commissioning of NIDS, Mumbai as INDC Danteshwari was held on December 12, 2018 with the Chief of Naval Staff (CNS) as the Chief Guest. INDC Danteshwari is the first Dental Centre of the Indian Navy to be accorded the status of a commissioned unit.

(f) ***37th Indian Scientific Expedition to Antarctica (ISEA):*** Two Naval Medical Officers were selected and deputed for the 37th Indian Scientific Expedition to Antarctica being conducted by NCAOR (National Centre for Antarctic & Ocean Research), Goa, under the aegis of Ministry of Earth Sciences (MoES) w.e.f. November 25, 2017 till March, 2019.

(g) ***Establishment of Forward Surgical Centre (FSC):*** FSC was established and operationalize at Air Force Station, Naliya, Indian Air Force. The primary objective was to assess the capability of medical services in the Indian Air Force to establish and operationalize a basic surgical care facility at a remotely located Air Force base at a short notice to provide life and limb saving surgery under field conditions to cases that would otherwise require shifting to a secondary tertiary care hospital far away from the theatre of war. FSC was conceived as a pilot project to augment medical support to some of the geographically isolated frontline fighter bases of strategic importance in the IAF with zero financial outlay.

(h) ***Cardiac Catheterization Laboratory (CCL) at Air Force Hospital, Kanpur:*** Single plane Cardiac Catheterization Laboratory with rotational angiography on partial turnkey basis has been successfully commissioned on January 12, 2018.

DIRECTORATE GENERAL DEFENCE ESTATES (DGDE)

9.17 The Directorate General Defence Estates, New Delhi, has advisory and executive functions in matters relating to management of Defence lands and Civic Administration in 62 Cantonments. It presently functions through six Principal Directorates at Jammu, Chandigarh, Kolkata, Lucknow, Pune and Jaipur. The Principal Directorates in turn supervise a number of field offices, i.e. 38 Defence Estates Offices, 3 Assistant Defence Estates Offices and 62 Cantonment Boards.

9.18 The Ministry of Defence owns approximately 17.57 lakh acres of land throughout the country managed by the three Services and other Organizations like DGDE, Ordnance Factory Board, DRDO, DGQA, CGDA etc. The Army has the maximum of the land i.e. 14.147 lakh acres followed by Air Force 1.40 lakh acres and Navy 0.44 lakh acres. The defence land inside the notified Cantonments is approximately 1.57 lakh acres and the remaining around 16.00 lakh lies outside the Cantonments.

9.19 Details of land are maintained in General Land Register (GLR) prescribed in Cantonment Land Administration Rules (CLAR), 1937 and details of defence land situated at outside cantonments in Military Land Register (MLR) prescribed in Acquisition, Custody, Relinquishment (ACR) Rules, 1944. Both the registers are maintained in every DEO Circle. GLR is maintained in every Cantonment Board Office also for land placed under the management of Cantonment Boards.

9.20 The Directorate General has undertaken computerization of land records, survey and demarcation of all defence lands and digitization of records in order to strengthen control and management over defence land. Raksha Bhoomi software has been developed by DGDE to store electronically the information in GLR and MLR in respect of areas under all the Defence Estates Officers and Cantonment Boards.

9.21 About 98.95% and 100% survey work of defence land has been completed for defence land under DEO/ ADEO Circles and Cantonment Boards respectively. The second phase of survey has been started.

9.22 DGDE also conducts land audit keeping in view the importance of land as a national resource. The Land audit reports for the three years period (2011-12 to 2013-14) and the second cycle of land audit for the year 2014-15, 2015-16 and 2016-17 (Vol-I) have been published and circulated for necessary follow-up action. Land Audit report in respect of 8 DEO Circles for the year 2016-17 (Vol-II) is under compilation. The third cycle of audit started in 2017-18. Land Audit in respect of 12 DEO Circles has been completed and for 13 DEO Circles for 2018-19, the audit is under process. The land audit for all 38 DEO circles will be completed by 2019-20.

9.23 The management of Defence Lands necessarily warrants proper maintenance of land records. Activities pertaining to improvement of record rooms (renovations) in all DEO offices and establishment of AU&RC have been completed. Also, indexing, scanning and microfilming of Records are continuous process. The phase-I of the work comprising 321964 files has been completed in DEO offices and Cantonment Boards. Phase-II of the work for 105617 files is in progress, out of which work is completed for 86092 files. Microfilming of digitized documents has been done by DEO Secunderabad as a pilot project. It has been decided to do microfilming of digitized records of other DEOs in a centralized manner.

9.24 The Defence Estates Department also undertakes hiring of residential accommodation and hiring / requisitioning of land for the Armed Forces. In J&K requisition of immovable property is done under J&K RAIP Act, 1968.

9.25 Directorate General Defence Estates is also responsible to control, monitor and supervise the Civic administration in Cantonment. There are 62 Cantonments in India located in 19 States, including National Capital Territory of Delhi and are administrated by Cantonment Boards which are 'Body Corporate', functioning under the provisions of the Cantonments Act, 2006. Supervision and control over the working of these bodies is exercised through the General Officers Commanding in Chief and Principal Directors, Defence Estates at the intermediate level and by the central Government through Directorate General Defence Estates at the apex level.

9.26 The resources of the Cantonment Boards are limited, as the bulk of the property in the Cantonment is owned by the Government. Boards, however, receive payment of service charges in respect of Central Government properties. Grant-in-aid to some extent is provided by the Central Government to Cantonment Boards.

9.27 The Cantonments situated in the states of Madhya Pradesh, Telangana, Delhi and Jharkhand started getting share from the concerned State Governments. The Government of Karnataka has taken a decision to share State Govt. revenue with the Cantonment Board Belgaum w.e.f. 2018-19. Efforts are on to pursue the matter with remaining State Governments.

9.28 Cantonment Boards run Higher Secondary Schools and Intermediate/ Junior Colleges and total number of schools and colleges maintained by Cantonment Boards is 204, besides 46 "Skill Development Centres" providing training in tailoring, embroidery, beautician courses, stenography, sewing, computer application, automobile repairing, electrical & electronics and IT applications. The Boards have also established 36 "Centres for Differently-abled Children" to address their special needs like medical examination, counselling, physiotherapy and special education. Cantonment Boards maintain 88 hospitals and dispensaries for providing various services to the general public of Cantonment and nearby areas.

9.29 Cantonment Boards have taken measures like tree plantation, enforcing ban on polythene bags & municipal solid waste management etc. for protection of environment. A public grievances redressal system called "Samadhan" and an employee's information system, called "Suvidha" have also been implemented in all Cantonments.

(i) Under the Swachh Bharat Abhiyaan (SBA), all Cantonment Boards have been taking earnest steps for clean and green Cantonment areas. All 62 Cantonments have already been certified by the Ministry of Housing and Urban Affairs (MoHUA) as ODF. New sewer lines and Sewage Treatment Plants (STPs) are being laid/installed (wherever feasible) and intensive cleaning along with aggressive awareness campaign is being launched.

(ii) The Cantonment Boards have been making rapid strides for switching over to digital platforms in various aspects of Cantonment administration. "Samadhan" – an on-line public grievances redressal system has been implemented by all Cantonment Boards to make their administration more responsive to the public. "Suvidha"- a software to address the grievances of the staff has also been installed by the Boards. Now, e-tendering and e-procurement are implemented by all Cantonment Boards. Most of the Boards are already providing e-services to the residents in taxation, birth/death registration, hospital management etc.

(iii) During the current financial year, the Cantonment Boards switch over to LED lighting and to install roof-top solar panels to tap solar energy. About 80% of the existing light points has already been converted into LED lights. In so far as harnessing solar power is concerned, a capacity of 1647.5 KW has already been installed by the Cantonment Boards.

(iv) International Yoga Day was celebrated on June 21, 2018 by all the Cantonment Boards with great enthusiasm. People of all age-group including officers, staff, their families as well as students of Cantonment Board schools and local residents participated in the event.

OFFICE OF THE CHIEF ADMINISTRATIVE OFFICER (CAO)

9.30 The Office of the Chief Administrative Officer (CAO) provides civilian manpower and infrastructural necessities to the Services Headquarters and the Headquarter Offices of Inter-Service Organisations (ISOs) under the Ministry of Defence. The Chief Administrative Officer (CAO) also discharges the functions of Director (Security) and Chief Information Security Officer (CISO).

9.31 The functions of the CAO's Office are carried out by the following nine Divisions:

(a) ***Manpower Planning and Recruitment Division:*** This Division is responsible for recruitment to various categories of the Armed Forces Headquarter (AFHQ) Cadre/Ex-Cadre posts, Compassionate Appointment, framing/ amendment of Recruitment Rules for various grades, re-verification of character and antecedents of employees working in sensitive organisations, Cadre Review/Restructuring of AFHQ Civilian cadres.

During 2018-19, cadre restructuring of 16 cadres was initiated, 35 Recruitment Rules of AFHQ cadres were revised and total 512 new incumbents (160 Group 'B' & 352 Group 'C') were recruited in AFHQ.

(b) ***Personnel & Legal Division:*** This Division is responsible for the Cadre Management including posting/promotion/ deputation of the civilian personnel in about 200 grades, posted in the three Services Headquarters and 27 Inter-Service Organisations besides handling court cases of the CAO's Office.

During the year 2018-19, 429 probationers were removed from probation; promotions to 922

employees (Gp A- 78, Gp B- 384, Gp C- 460) were granted. Also, 260 employees were granted financial benefit under MACP & NFSG. A total of 398 cases was reviewed under FR 56(j).

(c) ***Administration Division:*** This Division deals with all matters pertaining to pay & allowances and administrative work (including medical, pension and budget cases) of civilian employees working in IHQ of MoD(Army)/ISOs as also implementation of e-governance, electronic data processing and maintenance of website of CAO's Office.

As per Ministry of Personal, Public Grievances & Pension, Department of Pension & Pensioners Welfare OM No. 38/37/2016-P& PW(A) dated May 12, 2017, all cases for revision of pension of pre 2016 pensioner's/family pensioners, whose record were readily available have been processed.

(d) ***Finance and Material Division:*** This Division provides material requirement to the ISOs which includes procuring and provisioning of office equipment, stores, furniture, stationery and IT equipment. During the year 2018-19, Surveillance and Access Control Management System (SACMS) were made operational in National Defence College (NDC) and Sena Bhawan.

(e) ***Quartering Division:*** This Division deals with all matters pertaining to management and allotment of MoD Pool Married Accommodation to the service officers posted in IHQ of MoD/ ISOs.

The existing estate management system has been upgraded and commissioned in December, 2018 which has facilitated better and transparent information to the service officers.

(f) ***Works & Special Project Division:*** This Division looks after "Works" matters pertaining to allotment and maintenance of office accommodation, including hiring of accommodation due to deficiency in respect of all constituents of Ministry of Defence. Special Projects assigned to the Office of JS & CAO include processing of approvals for construction of National War memorial & Museum in Delhi, monitoring of construction of Nau Sena Bhawan, Thal Sena Bhawan and civil electrical works associated with Surveillance and Access Control Management System (SACMS) at Sena Bhawan and South Block.

National War Memorial at 'C' Hexagon of India Gate was inaugurated and dedicated to the armed forces on February 25, 2019 by Prime Minister.

(g) ***Departmental Discipline, Coordination and Welfare Division:*** This Division deals with disciplinary cases of AFHQ Civilian employees, coordination matters relating to implementation of Official Language policy, welfare activities, JCM, Women Cell, Sports & Cultural activities, Departmental Canteens, appointment of AMAs, Defence Civilian Medical Aid Fund (DCMAF) etc., and also administration of Ministry of Defence (Library) and grant from NDF for purchase of reading material of entertainment of troops.

88th Meeting of OC (JCM) of AFHQ/ISOs was held to settle service issues of employees of AFHQ/ISO Cadre. Consequent upon celebration of Hindi Pakhwara, Rajbhasha Prize Distribution ceremony was held on December 20, 2018 and various awards were given to the winners.

Departmental Discipline Section deals with the disciplinary and vigilance matter of officers/

officials of AFHQ Services. About 85 Disciplinary cases were handled during the year and a booklet 'VIGNETTE' was released for creating awareness amongst AFHQ employees about Discipline and Vigilance matters. During 2018-19 Ministry of Defence (Library) has added 845 books, subscribed to 124 Journals/Periodicals and 32 Newspapers.

(h) ***Defence Headquarters Training Institute (DHTI):*** DHTI provides training to civilian personnel posted in the Service Headquarters and Inter – Service Organisations. DHTI also caters to specialized training requirement by conducting classes on Defence Procurement Procedure (DPP)/Defence Procurement Manual (DPM), e-procurement, RTI, First Aid & Fire Fighting, Security Consciousness, Behavioural topics, Preparation of Cabinet Notes and Parliament Procedure. Participants include inter-alia Service Officers & PBOR from the three service Headquarters and ISOs.

During 2018-19, 97 courses were conducted by DHTI. Three mid-career Professional Development Programmes in which participants visited Civil Service College, London and Asian Institute of Technology, Thailand, as part of the course curriculum. In addition, 23 training programmes are being conducted at field formations in peripatetic form, catering for training needs of DGMT, DRDO and NIDEM and also for probationers of IDES & IIS by providing faculty assistance. AFHQ Mentoring Programme (AMP) has also been launched to familiarize direct recruits of all grades about AFHQ cadre.

9.32 ***Security Office:*** The Security Office is responsible for physical security, surveillance & access control, prevention of breach of security & fire within the Defence Headquarters Security Zone comprising of 22 buildings. Security Office issues approximately 90,000 passes of various types annually which include SLIC, DAC, TP, CHT & Vehicle Stickers etc.

9.33 During the year, the Manual of Security Instruction which was of 2008 vintage was revised, modernised & updated.

DIRECTORATE OF PUBLIC RELATIONS (DPR)

9.34 Directorate of Public Relations (DPR) is the nodal agency for disseminating information to the media and public about important events, programmes, achievements and policy decisions of the Ministry of Defence (MoD), the Armed Forces, Inter-Services Organisations and Defence Public Sector Undertakings (DPSUs). The Directorate with its headquarters in New Delhi and 25 regional and branch offices spread across the country, is responsible for providing support to media ensuring wide publicity in the print, electronic and social media. It also facilitates media interaction with the leadership and senior officials of the Ministry and the Armed Forces by conducting regular interviews, press conferences and press tours.

9.35 The Directorate brings out a fortnightly journal, Sainik Samachar, for the Armed Forces in 13 languages. Work is in full swing to make Sainik Samachar App to reach out to more people. Broadcasting Section of the Directorate produces a 40-minute programme 'Sainikon Ke Liye' that is broadcast daily on All India Radio for Armed Forces personnel. Photo Section of the Directorate provides photo coverage to important events related to Defence. The Photo Archives of the Photo Section of the DPR is now undergoing the digitisation process.

9. 36 Directorate conducted the Defence Correspondents' Course for media persons from August 26, 2018 to September 22, 2018 to enhance their knowledge about defence matters. Twenty-eight journalists including seven women drawn from all over the country attended the month-long course which was

conducted in different establishments of Army, Navy and Air Force.

9.37 During the year, DPR provided coverage on different events including inaugural Indo-US Ministerial 2+2 Dialogue in New Delhi between Minister of External Affairs along with Minister of Defence and their United States counterparts Secretary of State along with Secretary of Defence on September 6, 2018; Inauguration of 10th edition of biennial 'Def Expo' in Chennai by Prime Minister which happened from April 11-14, 2018 that for the first time projected India's Defence manufacturing capabilities to the world with tagline 'India: The Emerging Defence Manufacturing Hub'; Announcement of set up of two Defence Production Corridors in Uttar Pradesh and Tamil Nadu; First-ever circum navigation of the globe by all-women crew of Indian Navy in an indigenously built 56-foot Indian Navy Sailing Vessel, 'INSV Tarini'; Training of women officers of the Afghan Army and Air Force on basic military aspects, including physical training, weapon training, tactics, communication skills and leadership at Officers' Training Academy, Chennai from November 26 to December 22, 2018.

9.38 The Directorate also provided good coverage of dedication to the nation of National War Memorial in New Delhi by Prime Minister on February 25, 2019;Inauguration of Aero India 2019 at Air Force station Yelahankain Bengaluru by Raksha Mantri that was held between February 20-24, 2019; Successful mid-air refuelling of Light Combat Aircraft (LCA) 'Tejas'; Launch of 'Mission Raksha Gyan Shakti' Defence Minister to generating Intellectual Property in India to achieve the goal of self-reliance in Defence sector; Inauguration of Combined Commanders' Conference at Air Force Station, Jodhpur and launch of 'Parakram Parv' by Prime Minister on September 28, 2018;Decision of Ministry of Defence to enhance financial decision-making powers of the Vice Chiefs of the three Services by five times to ₹ 500 crores in order to expedite the decision making process; Dedication to the nation four span of temporary bridge on the old Ferozepur-Lahore highway over river Satluj River (Hussainiwala Barrage) connecting Hussainiwala Enclave from Ferozpur by Raksha Mantri on August 12, 2018; Tenth edition of Indo-Russian joint military Exercise INDRA, conducted at Sabina Military station in Russia from November 18 to 28, 2018; Award of Padma Shrito retired veteran of victorious 1965 war Sepoy Murlikant Rajaram Petkar (Retd) who later won Paralympic Gold in 50 metre free style swimming by President on March 20, 2018.

9.39 The Directorate arranges all media facilities related to Republic Day Celebrations, including Beating the Retreat ceremony on Vijay Chowk and brings out a commentary book for the 'Parade on Rajpath'. Other important calendar events such as Independence Day celebrations at the Red Fort, Defence Minister's annual customary message to the Armed Forces on the eve of Independence Day, Combined Commanders' Conference, Prime Minister's NCC Rally and Defence Investiture Ceremonies at the Rashtrapati Bhawan are also accorded due publicity.

SERVICES SPORTS CONTROL BOARD (SSCB)

9.40 Services Sports Control Board (SSCB) conducts and co-ordinates various sports activities in the three Defence Services. Inter-Service championships comprising of four teams (Army Red, Army Green, India Navy and Air Force) are conducted under the aegis of SSCB in 19 Sports disciplines and trials are conducted in 14 disciplines to select the Services team for participation in the National Championship/Games/ Military World Championships.

9.41 During the year 2018, SSCB fielded Senior Men's teams in the National Championships conducted by Sports federations/associations. Services team won the National Championship in many events.

9.42 During the year Services sportsmen represented India at various International Championships and won 13 medals (Gold-3, Silver-4 and Bronze-6) in

Commonwealth Games 2018, 69 Medals (Gold-15, Silver-24 and Bronze-30) in Asian Games, 2018 and 72 Medals (Gold-15, Silver-24 and Bronze-33) in Asian Paralympics Games.

ARMED FORCES FILM & PHOTO DIVISION (AFFPD)

9.43 Armed Forces Film & Photo Division (AFFPD) is an Inter Services Organization of the Ministry of Defence entrusted with the responsibility of producing films for training, documentary and promotional purposes for the three services.

9.44 In the current year AFFPD has completed and released five training films for the Army in association with Army Training Command (ARTRAC).

9.45 Photography has now shifted from negative to digital format and presently all the photographs are being exposed digitally and issued in CD/DVD format and as hard copies (photo prints) as per requirement.

9.46 The Central Defence Film Library (CDFL) of this Division is responsible for distribution of training films to various units/ formations/ training establishments/ commands to meet their specific training requirements. During the current year, 9431 DVDs have been dispatched/ issued on loan to various units/formations of Army/ Navy/ Air Force.

9.47 AFFPD has a rich collection of rare films and photographs of the World War-II, the material inherited from the British are of great historical value and are maintained and preserved at the Central Defence Film Library of this Division.

NATIONAL DEFENCE COLLEGE (NDC)

9.48 National Defence College is a premier training institution of the Ministry of Defence. Selected Armed Forces Officers of the rank of Brigadier/equivalent from Indian and Foreign Armed Forces and Officers of equivalent status from Civil services are nominated for training at the college. The Course composition is of 100 officers comprising 40 from the Indian Army, 6 from the Indian Navy, 12 from the Indian Air Force, 17 from Indian Civil Services and 25 from Friendly Foreign Countries. The officers undergo an eleven months programme with focus on national security, covering all dimensions of domestic, regional and international issues to equip future policy makers with background necessary to get a broad understanding of the multifarious economic, political, military scientific and organisational aspects that are essential for planning of National Strategy.

9.49 The National Defence College is currently conducting the 58th NDC Course. The mandated six modules on Socio Political, Economic, International Security, Global and Technology Issues, Strategic Neighbourhood and Structures for National Security and Strategy have since been completed on November 27, 2018.

9.50 During the Course, the Course Participants have the benefit of interactions with various foreign delegations and dignitaries of national and international repute, Heads of State, Ambassadors, Ministers academicians and Think Tanks. The Vice President visited the NDC on October 15, 2018. The President addressed the Course officers and lauded the role being played by the NDC in preparing strategic leaders to deal with the complex security environment of the future in a comprehensive manner.

9.51 The Commandant, NDC also represented the NDC in the annual meet of Heads of Defence Universities, Colleges and Institutions of the ASEAN Regional Forum (ARF) held at Tokyo (Japan) from September 26 to 28, 2018 and at United Arab Emirates National Defence College Seminar on October 28, 2018.

9.52 The Convocation Ceremonies to award M.Phil Degree to 55th and 56th Course participants were held on

February 17, 2018 and September 15, 2018 respectively, graced by the Raksha Mantri and the Lieutenant Governor of Delhi respectively. The 58th NDC Course Participants graduates on November 30, 2018 and the ensuing 59th NDC Course would commence on January 7, 2019.

SCHOOL OF FOREIGN LANGUAGES (SFL)

9.53 The School of Foreign Languages (SFL) is an eminent foreign language institution under administrative and functional control of the HQ IDS, Ministry of Defence and has been teaching in India since 1948. The School imparts training in foreign languages to personnel of the three Services of the Indian Armed Forces and CAPFs. It works as a nodal agency for other Ministries and Departments of the Government of India such as the Ministry of External Affairs, the Cabinet Secretariat, Central Police Organisation viz (BSF, CRPF, ITBP, etc.) in terms of foreign language training and examination. Presently, following languages are being taught at SFL by regular faculty. (i) Arabic (ii) Chinese (iii) Persian (iv) Russian(v) Sinhala (vi) Tibetan (vii) Spanish. Courses in other languages are conducted by Guest Lecturers on requirement basis.

9.54 The School of Foreign Languages conducts following courses in various languages:

(a) Certificate of Proficiency (COP) (One Year Course)

(b) Advance Diploma of Proficiency (ADOP) (One Year Course).

(c) Interpretership (Varies from 16 ½ Months to 23 ½ Months course)

(d) Short Term/Refresher course (Depending upon requirement of user organisation).

9.55 Details of participation in different courses held during 2018-2019 are tabled below:

COURSES	Army	Navy	Air Force	CAPFs	Others	Total
COP	7	7	-	11	49	74
INTER'SHIP	1	47	49	10	3	110

Language wise participation of students is as follows:

LANGUAGE	COP	ADOP	INTER'SHIP	SHORT TERM	TOTAL
Arabic	14	Nil	11	4	29
Chinese	31	Nil	54	Nil	85
Persian	2	Nil	7	Nil	9
Russian	27	Nil	11	18	56
Tibetan	Nil	Nil	8	Nil	8
Sinhala	Nil	Nil	21	04	25
Bahasa Indonesia	Nil	Nil	Nil	04	4
Burmese	Nil	Nil	Nil	11	11

HISTORY DIVISION

9.56 The History Division was established on October 26, 1953 to compile the histories of the military operations conducted by the Indian Armed Forces since independence. Till now, it has compiled and published 19 volumes including the History of Operations in Jammu & Kashmir 1947-48, Operation Polo, Operation Vijay (Goa), Military Costumes of India, Stories of Heroism, The India-Pakistan War of 1965: A History, The India-Pakistan war of 1971: A History and Saga of Valour (Param Vir Chakra & Ashoka Chakra Winners). The Division has also reprinted twelve volumes of Official History of the Indian Armed Forces in the Second World War 1939-45. The histories of operations conducted by the Indian Armed Forces on UN Peace Keeping Missions have also been published such as UN Operations in Congo, History of the custodian force (India) in Korea 1953-54, Operation Shanti (Indian Troops in Egypt) and Terrific Responsibility (The Battle for Peace in Indo-China).

9.57 The Division is presently working on two projects 'The role of Indian Armed Forces in World War-I' and 'The History of Kargil War.' The 'Digitization of Records' pertaining to World War-II is in progress.

9.58 The History Division have also provided valuable inputs and operational records including war diaries, dispatches etc. of Jammu & Kashmir operations in 1947-48 to National Archives of India for exhibition 'on India @ 70; The Jammu & Kashmir Saga' held in January 2018 on the occasion of 70 years of Jammu & Kashmir accession to India.

9.59 The History Division functions as the research, record and reference office of Ministry of Defence and the Indian Armed Forces. The Division also runs a Fellowship scheme under which two Fellowships are granted for three years to encourage research in military history. So far twenty-two Research Fellows have benefitted under the scheme.

9.60 The Heraldic Cell of the Division assists the three Services Headquarters including Coast Guard Headquarters and the Ministry of Defence in ceremonial matters such as naming of new establishments and acquisitions, designing of crests and badges and coining of mottoes.

9.61 The Departmental Library houses more than five thousand titles, including books, periodicals and foreign publications of military importance.

COLLEGE OF DEFENCE MANAGEMENT (CDM)

9.62 CDM is a tri-Service institution which imparts skills of contemporary management thought, concepts and practices, that lead to effective decision making, enlightened leadership and efficient resource management in a knowledge centric environment to the senior leadership of the three Services, Para Military Forces, officers of the Ministry of Defence and International participants at the Conceptual, Directional and Functional levels. The Higher Defence Management Course (HDMC) is conducted over a period of 44 weeks. Besides the HDMC, CDM conducted a number of Management Development Programmes (MDPs), Defence Management Course for SAARC Nations and Senior Defence Management Course (SDMC) for participants from tri-Services as also participants from friendly foreign countries through a networked environment supported by state of the art information and communication technology.

9.63 From January 1, 2018 to December 31, 2018, CDM conducted one Higher Defence Management Course, two Senior Defence Management Course and Ten Management Development Programmes and trained 550 Officers of the three Services including BRO, PMF & Government Organisations apart from imparting knowledge on Defence Management to 1350 Officers at various Institutes of Higher Learning including National Security Council Secretariat through external capsules.

9.64 Since 2016, CDM is among the top 50 out of 5200 NAAC accredited institutions with a coveted grading of 'A+'. The College is a Centre of Excellence in the disciplines of 'Net Assessment' and is the only Accredited Training Organisation (ATO) for Indian Armed Forces for IPMA Certification in 'Project Management'. The College is also at the forefront in imparting 'Data Analytics & Visualization' training to the Indian Armed Forces. CDM is designated as the lead agency for implementation of National Knowledge Network (NKN) in the Armed Forces Training Institutes. The green initiatives at CDM include creation of Herbal Garden and establishment of an Eco Club in the campus.

9.65 The education imparted at CDM in 2018-19 includes Military Officers (Col & Equivalent) from over 21 countries from Asia, Africa, South America and Pacific Islands.

DEFENCE SERVICES STAFF COLLEGE (DSSC)

9.66 Defence Services Staff College (DSSC) in Tamil Nadu is a premier Tri-Services joint training institution in the world training selected officers of the Indian Armed Forces, Civil Services/Paramilitary Forces and friendly foreign countries. The Staff College affords an invigorating environment serving as a Cradle for Middle Level Military Leadership, creating excellent staff officers and stellar leaders as the cutting edge of the armed forces with accentuated levels of professionalism and steadfastly upholding the virtues of 'Duty, Honour and Valour'.

9.67 DSSC was awarded the President's Colours in September, 2016 by the Hon'ble President of India in recognition of the commendable service rendered as a flagship joint training institution.

9.68 The College is progressively bracing itself for training 500 student officers. The strength of the current Staff Course has been enhanced to 474 including three officers from the Civil Services/Paramilitary Forces, two from Coastguard and 38 International officers from 26 different nations.

ARMY PURCHASE ORGANIZATION (APO)

9.69 Army Purchase Organization (AP) deals with procurement of Rice, Sugar, Pulses, Barley whole, Gram whole, Edible Oil, Meal Ready to Eat (MRE), Fruit tinned/dried, Veg Tinned/Dehyd/RTE, Onion, Potato, Jam Td, Cashew Kernel, Almond, Raisin Brown, Butter and Desi Ghee, and other items like meat tinned, fish tinned, coffee, egg etc. to ensure timely supply of these commodities to Defence Forces.

9.70 The procurement is being carried out in accordance with DPM-2009 Open Tender Enquiry through CPPP in which Request For Proposal (RFP) is uploaded on two bid system where Registered/ Un-Registered vendors can participate in the bidding process based on the Qualitative Requirements (QRs) enshrined in the RFPs.

9.71 Negotiated contracts are concluded with NCDFI for dairy products and procurement of pulses through NAFED as per Govt. orders on the subject.

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CHAPTER **10**

RECRUITMENT AND TRAINING

10 RECRUITMENT AND TRAINING

10.1 The Armed Forces epitomize the ideals of service, sacrifice, patriotism and composite culture of the country. Recruitment to the Armed Forces is voluntary and open to all citizens of India irrespective of caste, class, religion and community provided the laid down physical, medical and educational criteria are met.

10.2 ***Selection of Commissioned Officers in the Armed Forces through UPSC:*** Officers entry in the Armed Forces is mainly through UPSC which conducts the following two All India Competitive Examinations:

(a) ***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. Having cleared UPSC written examination, eligible candidates undergo Service Selection Board (SSB) interview, which lasts for five days. On being medically fit and coming in NDA merit list, successful candidates join the NDA or NA as per their option of service exercised at the time of applying. On completion of the course, they are sent to the respective Service Academies for their pre-commissioning training.

(b) ***Combined Defence Service Examination (CDSE):*** CDSE is conducted by the UPSC twice a year. University graduates or those in final year of graduation are eligible to appear in the examination. Candidates qualifying in written examination have to undergo SSB interview and medical tests. Candidates whose names appear in the merit list undergo basic military training of 18 months at Indian Military Academy for Permanent Commission and 11 months at Officers Training Academy (OTA), Chennai to become Short Service Commissioned Officers (SSCOs). SSCOs can serve for a duration of 10 years, extendable to 14 years. However,

they can opt for permanent commission after completion of 10 years or seek release after completion of five years of service, which is considered on case to case basis by Integrated Headquarters of Ministry of Defence (Army).

INDIAN ARMY

10.3 Apart from the UPSC, there are other channels of entry into Indian Army as under:

(a) ***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). On being successful in the SSB and being declared fit by the medical board, they undergo one year basic military training at the Officers Training Academy, Gaya and thereafter undergo three years engineering degree course in respective streams before getting Permanent Commission. On being commissioned, they are further put through one year of post commissioning training for the Army Service into which they are commissioned.

(b) ***University Entry Scheme (UES):*** 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 Integrated Headquarters of Ministry of Defence (Army). These candidates are required to appear before SSB and Medical Board. Successful candidates undergo one year pre-commission training at the Indian Military Academy (IMA), Dehradun. Cadets through this entry are also entitled to one year ante-date seniority on commissioning. Selection for this entry, however, stands temporarily suspended.

(c) ***Technical Graduates Course (TGC):*** Engineering graduates from notified discipline of engineering, post graduates with minimum second division aggregate marks in notified discipline for Army Education Corps and M.Sc. in Agriculture/Dairy for Military Farm 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-commissioned training at the IMA, Dehradun. Engineering Graduates through this entry are also entitled to two years ante-date seniority on commissioning.

(d) ***Short Service Commission (Technical) Entry:*** The Short Service Commission (Technical) Entry Scheme provides avenue for selection to eligible technical graduates/ post graduates into Technical Arms. After SSB and medical Board, the selected candidates are required to undergo approximately 49 weeks pre-commission training at OTA, Chennai. On completion of training, they are inducted as Short Service Commissioned Officers. Cadets through this entry are also entitled to one year's ante-date seniority on commissioning.

(e) ***NCC (Special Entry Scheme):*** University graduates possessing NCC 'C' Certificate with minimum 'B' grade and 50% aggregate marks in graduation examination are eligible to apply for Short Service Commission through this entry. Those studying in third year are allowed to apply provided they have secured minimum 50% aggregate marks in first two years. Such candidates will need to secure overall aggregate of minimum 50 % marks if selected in interview failing which their candidature will be cancelled. Candidates must possess

graduation degree at the time of joining OTA or those candidates studying in third year should be able to produce the degree within 12 weeks from date of commencement of training at OTA. Candidates have to undergo approximately 49 weeks pre-commission training at OTA, Chennai. On completion of training, they are inducted as Short Service Commissioned Officers.

(f) ***Short Service Commission (Judge Advocate General Entry):*** Law graduates with minimum 55% aggregate marks in LLB age between 21 to 27 years can apply for Judge Advocate General Branch. Eligible candidates are called for direct SSB interview and medical test. Successful candidates are required to undergo approximately 49 weeks pre-commission training at OTA Chennai. On completion of training, they are inducted as Short Service Commissioned Officers.

(g) ***Short Service Commission Women (SSCW):*** Eligible women candidates are selected in the Army as Short Service Commission Officers. Commission is granted in Non-Technical Graduate, Technical and Post Graduate/ Specialist for a period of ten years, extendable by additional four years purely on voluntary basis. The duration of training is 49 weeks at Officers Training Academy, Chennai. For Short Service Commission Women (Technical) Entry passed or final year/semester students of B.E/B.Tech in notified streams are eligible to apply. Shortlisted candidates appear for SSB interview and Medical Test, thereafter. The applicants for Non-Technical Graduate stream, however, are required to apply through UPSC and after written examination, would come up for SSB interview. A total of 20% allotted seats from Non-Technical stream have been reserved for NCC 'C' certificate holder women candidates with minimum 'B' grade and 50% aggregate marks in graduation examination. For Judge Advocate General's Branch, applications are invited from Law Graduates with minimum 55% marks. Widows of Defence Personnel who meet the laid down eligibility criteria are granted four years age relaxation and 5% seats of each course (2.5% each in Tech and Non-Tech) are reserved for them. Short Service Commission Women (Tech), NCC entry and Judge Advocate General Branch are exempted from written examinations.

(h) ***Service Entries:*** For Junior Commissioned Officer & Other Ranks have the following options to get commissioned as officers through Service Selection Board:

(i) ***Army Cadet College (ACC) Entry:*** Eligible Other Ranks (ORs) in age group of 20-27 years and minimum two years of service, having 10+2 pass qualifications can apply for Regular Commission through this entry. After qualifying in written examination conducted by the Military Training Directorate, the aspirants are screened by SSB and the Medical Board. Successful candidates are trained at Army Cadet College Wing, Dehradun, for three years at the end of which they get a graduation degree. This is followed by one year pre-commission training at IMA, Dehradun.

(ii) ***Special Commissioned Officers (SCO) Scheme:*** Under this entry JCOs/NCOs/ ORs in the age group of 30-35 years, with a Senior School Certificate Pass (Class 10+2 pattern) qualification, are eligible for Permanent commission after screening by SSB and Medical Board. They have to undergo pre-

commission training of one year duration at IMA, Dehradun. The rules for substantive promotion and acting promotion are the same as for regular officers. These officers are employed in units as sub unit Commanders/ Quarter Master and on various Extra Regimental Employment appointments up to the rank of Major. They retire at the age of 57 years after serving for period of about 20-25 years as officers. The scheme not only improves the career prospects of the existing PBOR but also helps in making up the deficiency of the support cadre officers in the Army.

(iii) ***Permanent Commission (Special List) (PC SL):*** Under this entry, JCOs/ NCOs/ORs up to 42 years of age, with atleast 10 years of service and a Senior Schools Certificate Pass (Class 10+2 pattern) qualification are eligible for commission after screening by SSB and Medical Board. They are granted PC(SL) after successful completion of four weeks orientation training at the IMA.

10.4 ***Automation of processes for Officers entries:*** Online processes which were earlier limited to submission of online application have since been upgraded. Candidates can now see the course notifications, submit application (less UPSC and Service entries), select SSB dates (including UPSC entries), view merit lists, receive joining letters, forward queries/feedback and receive responses as well as updates at every stage of the selection process, in an online mode.

10.5 ***Intake:*** Intake of candidates for pre-commission training as officers during the year 2018-19 is given in **Table No. 10.1**.

Table No. 10.1

S. No	Academy	Entry	Induction
1.	NDA	Army	622
		Navy	130
		Air Force	131
		Total	***883***
2.	IMA	IMA (DE)	194
		ACC	132
		SCO	40
		PC(SL)	21
		AEC	07
		Total	***394***
3.	OTA	SSC(NT)	111
		SSCW (NT)	26
		NCC	64
		NCCW	09
		JAG	15
		JAGW	11
		Total	***236***
4.	Tech Entries	UES	18
		SSC(Tech)	151
		SSCW (Tech)	29
		10+2 TES	207
		TGC	87
		Total	***492***
		Grand Total	***2005***

10.6 ***Recruitment of Junior Commissioned Officer (JCO) & Other Ranks (ORs):*** Recruitment in the Army is done through eleven Zonal Recruiting Offices, two Gorkha Recruiting Depots, one Independent Recruiting Office and 59 Army Recruiting Offices in addition to 48 Regimental Centres which carry out recruitment through rallies in their respective areas of jurisdiction.

Recruitment of Junior Commissioned Officer & Other Ranks is carried out through Online Application System for soldier General Duty, Soldier Tradesman, Soldier Technical, Soldier Clerk/Store Keeper Trade and Soldier Nursing Assistant, Havildar Education, Havildar Auto Cartographer and Religious Teacher JCO (RT JCO), JCO Catering categories. The current recruitment for Junior Commissioned Officers and Other Ranks comprises screening of aspiring candidates at rally site in the 1.6 km run followed by document checking, Physical Fitness Tests (PFT), Physical Measurement Test (PMT) and Medical Examination. This is followed by a written examination for those candidates who have qualified in all tests. Finally, a merit list is prepared and candidates in merit are dispatched to respective Regimental/ Training Centres for training. Efforts are made to ensure each district of the country is covered at least once in a recruiting year.

10.7 ***Revised Recruitment Rallies System:*** Indian Army is one of the biggest recruiters in the country which recruits almost 60,000 youths into the Army each year. Previously, recruitment was being carried out through an 'Open Rally System' wherein candidates could walk in for recruitment without applying for a rally. The 'Revised Recruitment System' has been introduced wherein a candidate is required to register online with the overall aim of reducing masses which turn up for recruitment by a regulated call up system. Thus connected administrative and discipline issues that arise due to large crowd have been negated. The revised Recruitment Rally System is being implemented in the following phases:

(a) ***Phase-I: Replacement of open rally system with call up system:*** Implementation of On-Line Registration for Recruitment of Junior Commissioned Officers/Other Ranks into the Indian Army was carried out w.e.f. July 18, 2015 and has been a major success, which has revolutionized the complete recruiting process. This initiative has streamlined our recruitment system and is also giving a boost to Government 'Digital India' programme where candidates from remote areas/rural areas are using internet to apply for this popular career option.

(b) ***Phase-II: Pilot project for online examination prior to physical and medical tests:*** Pilot project for online examination has recently been approved by the Ministry of Defence and Recruiting Directorate is in the process of implementation of the Pilot Project. This will be the major achievements once implemented. Initially the Pilot Project is being implemented in three zones as under and subsequently will cover Pan India:

(i) HQ Recruiting Zone, Ambala

(ii) HQ Recruiting Zone, Chennai

(iii) HQ Recruiting Zone, Jaipur

10.8 ***Recruitment Rallies:*** A total of 50026 candidates have been recruited for the Recruiting year 2017-18. For the Recruiting year 2018-19, 97 rallies were conducted.

INDIAN NAVY (IN)

10.9 Indian Navy (IN) carries out recruitment of personnel to effectively man ships, submarines, aircraft and shore establishments to the optimum levels. Recruitment in the Navy is carried out on all India basis. The number of uniformed personnel recruited/ inducted depends on the number of eligible applicants (men and women) who are able to qualify in the written test, Services Selection Board (SSB) interview, medical examination and their relative position in the merit list. No distinction is made on the basis of gender/religion/ caste/creed, either during recruitment or at any point of time thereafter.

10.10 ***Method of Recruitment:*** The recruitment system of the Navy is well streamlined, transparent, expeditious and candidate friendly. There are two modes of induction in the IN, viz. UPSC Entry and Non-UPSC Entry:

(a) ***UPSC Entry:*** The UPSC holds an examination, twice a year, for entry into the National Defence Academy (NDA) and Indian Naval Academy (INA) as Permanent Commission (PC) entries. Candidates are eligible to compete on completion of the 10+2 (PCM) Examination or while in the 12th standard. Thereafter, candidates who qualify the written exam are sent to the Services Selection Boards located at Bengaluru and Bhopal. Results of qualified candidates are forwarded to UPSC for making the final merit. Medically fit candidates, who are in the merit, are appointed by ADG(Rtg)/ IHQ of MoD (Navy), as applicable to the entry, for appointment to NDA/Naval Academy. On completion of the NDA/INA training, the Naval Cadets are sent to training ships at Kochi for Naval sea training. For the Graduate Special Entry Scheme (GSES), the UPSC holds the Combined Defence Services Examination (CDSE), twice a year. Graduates with B Tech degree are eligible to appear in the examination depending on the score obtained by qualified candidates in written exam, they are detailed for SSBs at Bengaluru and Bhopal. Results of qualified candidates are forwarded to UPSC for making the final merit. Medically fit candidates who are in the merit are selected by IHQ of MoD (Navy) for appointment in CDSE Entry.

(b) ***Non-UPSC Entry:*** The non-UPSC entries cater to both Permanent Commission (PC) and Short Service Commission (SSC). In this case, applications are invited and short-listed at IHQ of MoD (Navy) based on percentage in the qualifying exam. The short listed candidates are then sent for SSB interviews. Thereafter, a merit list, comprising qualified candidates is prepared as per the availability of vacancies.

(c) ***10+2 (Cadet Entry Scheme):*** The Scheme is a Permanent Commission entry for commission in the Executive, Engineering and Electrical branches of the Indian Navy. Under the scheme, candidates with 10+2 (PCM) qualifications, after selection through the Services Selection Board, are sent to the Indian Naval Academy for the B Tech Course. On successful completion of the course they are granted Permanent Commission in the Executive, Electrical and Engineering branches of the Navy.

(d) ***University Entry Scheme (UES):*** The UES was re-launched w.e.f. August 5 course as a Short Service Commission Scheme. Seventh and Eighth semester Engineering students are eligible to apply for induction into the Executive and Technical Branches of the Navy. The scheme also caters for the induction of Permanent Commission Executive officers w.e.f. 2014. Naval selection teams from IHQ of MoD (Navy) and Command Headquarters visit AICTE approved engineering colleges, across the country, to shortlist the candidates. The shortlisted candidates, based on All India Merit, are called for interview at the Services Selection Board. The successful candidates, thereafter, are put through the medical tests. Final selection is based on all India merit on the basis of marks obtained in the SSB interviews and availability of vacancies.

(e) ***Recruitment through NCC:*** BE/B Tech graduates possessing Naval Wing NCC 'C' certificate, are given opportunity in the Navy for induction as regular commissioned officers. These graduates are exempted from appearing in the written exam conducted by the UPSC and are selected through the SSB interview only. They join the

Indian Naval Academy for Naval Orientation Course (NOC) along with the CDSE cadets.

10.11 ***Women Officers:*** Women are being inducted into the Navy, as Short Service Commission (SSC) officers in the Executive (Observer, Pilot in Maritime Reconnaissance stream, Naval Armament Inspectorate Cadre, Air Traffic Controllers, Law and Logistics), Education Branch and the Naval Architecture of the Engineering Branch. In 2019, approval has been accorded for induction of women Short Service Commission (SSC) officers in Musician and Sports Specialization.

10.12 ***Permanent Commission to SSC Officers:*** The Government has introduced grant of Permanent Commission prospectively to the Short Service Commission officers, for both men and women, of the Executive Branch (Law and Naval Armament Inspectorate Cadre), Education Branch, Engineering Branch (Naval Architecture).

10.13 ***Opportunity for Widows of Deceased Service Personnel:*** The widows of deceased service personnel who die in harness are granted extension of age relaxation up to 35 years of age for officers' entry schemes.

Recruitment of Sailors

10.14 ***Method of Recruitment:*** Recruitment into the Navy is carried out on all India basis on State-Wise merit of the 'eligible recruitable male population', as per the number of vacancies available. The number of personnel recruited from a particular State depends on the number of eligible applicants who are able to qualify in the written examination, physical fitness test and medical examination and their relative position in the merit. There is no quota of vacancies based on caste/creed or religion. Advertisements in all leading National & Regional newspapers and Employment News are published inviting applications from the eligible volunteers. Publicity material is also despatched to a large number of schools/ colleges and all Zila Sainik Boards.

10.15 ***Types of Entries:*** The various entries, for recruitment of sailors, are as follows:

(a) ***Artificer Apprentices (AA) - 10+2 (PCM):*** 10+2/ equivalent examination with 60% or more marks in aggregate with Maths & Physics and at least one of these subjects viz. Chemistry / Biology/ Computer Science.

(b) ***Senior Secondary Recruits (SSR) – 10+2 (PCM):*** Qualified in 10+2/ equivalent examination with Math & Physics and at least one of these subjects viz. Chemistry / Biology / Computer Science.

(c) ***Matric Entry Recruits (MR):*** Matric Entry Recruits (MR) for recruitment of Chefs, Stewards, Musicians and Sanitary Hygienists– Matriculation.

(d) Direct Entry (Outstanding Sportsmen).

10.16 ***NCC Certificate Holders:*** The naval NCC 'C' certificate holders will be called to appear for written examination irrespective of qualifying cut off percentage for AA/SSR entry. The NCC candidates are to be given additional marks for various NCC certificates and participation in Republic Day camp/contingent which are added to the marks obtained in the written examination for preparation of merit list as given in **Table No. 10.2**.

Table No. 10.2

Type of NCC Certificate	Additional Marks Awarded		
	For Certificates	For Republic Day Contingent/ Camp	Total Additional Marks Possible
C	6	4	10
B	4		8
A	2		6

Publicity for Recruitment

10.17 Measures have been taken to make the youth of our country more aware of the opportunities in the Navy, both for officers including women and sailors. The means of publicity adopted to attract better talent are as follows:

(a) ***Press Advertisements:*** Advertisements are released through the Directorate of Advertising and Visual Publicity (DAVP) in the Employment News/ Rozgar Samachar and in newspapers in different languages for various entries viz, National Defence Academy, Combined Defence Services Examination, 10+2 B Tech Cadet Scheme, Short Service Commission (Technical and Non-Technical), University Entry Scheme, Law Graduates, NAI Officers, etc.

(b) ***Advertisements in Journals/Magazines:*** These are normally brought out in the journals/ magazines of educational institutions.

(c) ***Hoardings:*** Hoardings are planned to be erected at DAVP approved sites to attract youth of the country towards joining the Navy.

(e) ***Printed Publicity:*** Information folders, leaflets, brochures, data cards, posters and blow-ups, prepared through DAVP and private professional agencies are widely distributed.

(f) ***Exhibition and Fairs:*** Each year, at the Defence Pavilion, at the India International Trade Fair, New Delhi, a stall is established where information regarding recruitment in all the three Armed Forces is provided to visitors. This is also done in other organized fairs, which are career oriented and meant for students.

(f) ***Distribution of Publicity Material:*** Every year printed publicity material giving information about Navy and various entries for recruitment into the Navy is distributed to about 8000 schools all over the country.

(g) ***Re-development of Naval Recruitment Website:*** The redeveloped recruitment website (www.joinindiannavy.gov.in) launched in December 2016 has facilitated implementation of recruitment management system and applications for all officer and sailors entries through online applications only.

Key Initiatives

10.18 ***Indian Navy Entrance Test (INET):*** Indian Navy has successfully conducted computer-based recruitment examination namely Indian Navy Entrance Test (INET) for one of the three sailor entries into the Navy viz Artificer Apprentice. The first such examination was conducted successfully on February 25, 2018. A total of 51603 candidates had appeared for the examination. This was also the largest examination ever conducted in a single day by the Indian Navy. The second cycle of INET was conducted in early August 2018 for three days and 1,22,825 candidates appeared for the examination. This was spread across 165 centres in 59 different cities. The same has now been extended to all sailors' entries. The test was successfully conducted from February 23 to 28, 2019. Efforts are in hand to extend the scope for conduct of INET for non-UPSC Graduate Officer entries.

10.19 ***MoU with CSC:*** As a part of Digital India initiative, GoI has set up Common Services Centres (CSC) in all Panchayats across the country. The CSCs across the country are providing high quality and cost effective video, voice and data services. These also offer web enabled e-governance services, including submission of application forms, in the rural areas. Indian Navy has concluded an MoU with CSC, through which the Navy has extended its recruitment to reach all corners of the country through CSCs. Applicants can take the assistance

of any CSC to fill up and submit their online applications against payment of a nominal service fee. This facility is very beneficial for applicants in rural areas as also those without access to computers or internet.

Training

10.20 ***Ab-Initio Training for Officers:*** The Indian Naval Academy (INA) located at Ezhimala, approximately 280 kilometres North of Kochi, in Kerala, was inaugurated by the then Prime Minister of India on January 8, 2009. Spread over 2452 acres of coastal upland, INA has world class facilities in terms of infrastructure for both academic pursuits and outdoor activities, including state-of-the-art laboratories, workshops, swimming pool and play fields. The Academy has modern residential facilities, an excellent Mess and five well laid-out squadrons, each with its own comprehensive facilities. The administrative support to INA is provided by the Base depot ship, INS Zamorin, which was commissioned in April 5. Built at a cost of over 721.88 crore, the Academy is designed to accommodate and train approximately 750 cadets. The capacity of INA is being enhanced to 1200 cadets in Phase II, which is likely to be completed by 2020.

10.21 ***Indian Naval Academy Course (INAC):*** The first B Tech Course commenced at INA on June 22, 2009. This was a significant step in the evolution of the Navy to meet the technical challenges of the 21st Century. The induction of cadets to the Academy is through UPSC examinations as well as directly by IHQ MoD(Navy)/ DMPR based on the 10+2 merit of candidates. B Tech curriculum has been drawn up by the Navy, in conjunction with Jawaharlal Nehru University (JNU) and the All India Council for Technical Education (AICTE). The Academic Curriculum is accredited by AICTE. In addition to technical training, the Academy provides its cadets with a healthy mix of humanities and Naval History. This is in keeping with the Navy's goal of providing officers with high-end technical expertise without sacrificing the proven advantage of liberal education. The curriculum not only provides adequate academic grounding for award of a B Tech degree but also caters to the overall transition of an Officer Cadet to a fine Service Officer who is always ready to defend his country.

10.22 ***B Tech Streams:*** B Tech training is conducted in Applied Electronics and Communication (AEC) for 'X' officers, Electronics and Communication Engineering (ECE) for 'L' officers and Mechanical Engineering (ME) for 'E' and 'NA' officers. Accordingly, B Tech (AEC), B Tech (ECE) and B Tech (ME) degrees are awarded by JNU on completion of the B Tech course. On completion of a common curriculum in the first three semesters, cadets are separated into different streams for the remaining five semesters. In order to facilitate integration of cadets passing out of NDA, B Tech course for Naval cadets has been started at NDA from July 2016. The Naval cadets at NDA shall join INA after completing six semesters of B Tech (AEC) at NDA. The last two semesters for B Tech for these cadets shall be conducted at INA.

10.23 ***Other Courses:*** In addition to the flagship INAC course, the INA conducts Naval Orientation Course (NOC), NOC (Ext) and Short Naval Orientation Course (SNOC) which includes trainees from IN & ICG including women officers. Commencing December 2015 officer cadets from friendly countries are also being trained at INA.

Glimpses of Training Activities at INA

10.24 ***Delegation Visits to INA:*** Various delegations from FFCs have visited INA over the year. During the visit, the delegations interacted with staff and trainees and were acquainted with the infrastructure, academic facilities and training processes at INA. The aim of the visit was to reinforce the bridges of friendship between the navies and exchange best practices.

Foreign Training

10.25 The Indian Navy, in consonance with the government's policy of engaging friendly nations,

has been in the forefront of building 'Bridges of Friendship' with friendly navies. Training is one of the most important facets of this engagement. Indian naval personnel are regularly deputed to avail training courses abroad. The training interactions and availing of courses abroad have been a regular feature by the IN especially with countries like Bangladesh, Singapore, Indonesia, Thailand, Malaysia, Philippines, Sri Lanka, USA, UK, Japan, Germany, Australia, France and other FFCs.

10.26 The training courses abroad give an opportunity to the IN personnel to interact with other naval professionals from across the world who also attend these courses. In addition, participation in courses in advanced countries also enables IN personnel to imbibe established best practices of these navies and expose our personnel to niche technologies/ latest procedures with advanced navies. On the other hand, participation in courses in IOR countries enables fostering of better relations between personnel and gives an insight into the thought process and operating philosophy of their Armed Forces and also increases Navy's understanding of the country.

10.27 ***Training of Foreign Naval Personnel in India:*** The Indian Navy has been providing training to foreign personnel for more than four decades, during which it has trained more than 15,000 foreign personnel from over 41 Friendly Foreign Countries. The Navy aims to share and deliver the finest training in order to build capacity and everlasting relationships with Friendly Foreign Countries (FFCs). At any given time, there are between 500-600 international trainees in IN training establishments.

10.28 Realising this necessity, the Ministry of External Affairs provides assistance for training of naval personnel from a large number of countries under the Indian Technical and Economic Cooperation (ITEC) Scheme I and II. Under this scheme, the airfare, tuition, boarding and lodging are fully funded by the Government of India (except in the case of ITEC II Scheme wherein the parent country bears the cost of airfare). Further, financial aid in the form of subsistence allowance is also provided to meet the living expenses for the entire duration of the course. In cases where ITEC funding is unavailable, training is availed under the Self Financing Scheme (SFS) wherein the entire cost of training is borne by the trainees' own government.

10.29 Training is planned on a yearly basis from July 1 to June 30 of the next year and promulgated in the form of an Annual Training Programme in order to synchronise the organisational process. In most cases, international students are accommodated with IN trainees. Indian Navy also facilitates in case any trainee wishes to stay under his own arrangements.

10.30 The courses are structured for effective and efficient utilisation of training infrastructure and resources. The last few years have witnessed a steady increase in IN's commitment to build capacity through training cooperation. 'Training Diplomacy', thus, has become the corner stone of our foreign cooperation initiatives. The number of training slots allocated to foreign trainees since 2009 is as tabulated below:

Ser	Year	No of Training Slots Allocated
(a)	2009-10	699
(b)	2010-11	792
(c)	2011-12	853
(d)	2012-13	653
(e)	2013-14	917
(f)	2014-15	858
(g)	2015-16	857
(h)	2016-17	1013
(j)	2017-18	957
(k)	2018-19	1022

10.31 ***Deputation of Indian Navy Mobile Training Teams (MTT):*** To address the growing training load of international training, one of the important measure being undertaken is the conduct of customised training courses overseas to meet country-specific requirements. The customised training courses are undertaken by specially constituted Mobile Training Teams. So far, IN has deputed MTTs to Sri Lanka, Oman, Myanmar, Kenya, Vietnam, Mauritius, Bangladesh and Nigeria. Requests from certain other FFCs are under consideration. This endeavour will not only reduce the burden on our own training infrastructure but also effectively increase our training footprint across the world. The courses conducted abroad in 2018 are highlighted below:

(a) ***Diving Refresher Course:*** Personnel from Diving School were deputed for training to Mauritius and Maldives from April 25 to May 15, 2018 and October 9 to November 3, 2018 respectively.

(b) ***Training of MNDF and Mauritian Special Forces:*** Training of MNDF and Mauritian Special Forces was carried out by MTT.

(c) ***Short Term Training Team (STTT) – Oman:*** A STTT comprising one officer and three sailors from Signal School was deputed to Oman from July 23 to September 14, 2018 for training Omani personnel in Communication and Electronic Warfare. Another STTT comprising one officer and two sailors from Valsura undertook classes on Radar Theory for three weeks and a third STTT of two sailors undertook classes on aerial photography for two weeks.

(d) ***Mobile Training Team – Myanmar:*** A Mobile Training Team, comprising seven officers and two sailors, was deputed to Myanmar for three months. Training was imparted on shipyard management, logistics, Engineering subjects and English language. In all, about 60 officers and sailors were trained.

IN Mobile Training Team

10.32 ***Submarine Training for International Students:*** INS Satavahana is carrying out ab-initio submarine training for a large number of friendly navies of the region. Short familiarisation courses for Indonesia, Myanmar, Bangladesh and Sri Lanka and full-fledged basic submarine course for South Africa and Vietnam have been undertaken.

Training - National Cadet Corps (NCC)

10.33 ***Initiatives in Coastal States:*** IHQ MoD (N) has directed Commands to liaise with NCC authorities and encourage conduct of NCC camps onboard while alongside in harbour or embark NCC cadets for short duration sea sorties on IN ships. In addition to the above, IHQ MoD(N) had also requested Commands to conduct periodic interactions with Regional NCC HQs to deliberate on NCC training related issues.

10.34 ***NCC Attachments with IN:*** Training for the Naval NCC has been a priority area for the IN, and the conduct of camps is being facilitated on regular basis, which include sailing onboard ships, thereby giving valuable exposure to the cadets on life at Sea. There are sea attachments and training camps conducted at various Commands of the Indian Navy each year. These camps are for a duration of twelve days each, with one day of sailing onboard warships. There is a participation of approximately 240-360 NCC cadets in these camps. Further, as a culmination of the professional training of Naval NCC cadets, a 'Nau Sainik' camp is scheduled each year, wherein approximately 590 cadets participate. This camp also includes sailing onboard warships at sea.

All India Nau Sainik Camp

Instructions for NCC Cadets

10.35 ***MoU with IITs/ Universities and Colleges:*** Various MoUs have been signed with IITs and other educational

institutes of repute for various professional courses to enhance training standards of naval personnel.

10.36 ***Skill Certification Courses:*** Skill Certification courses are being undertaken by Hamla, Valsura, Shivaji, Dronacharya, Anti Submarine Warfare (ASW) School, Navigation and Direction (ND) School & Signal School under Pradhan Mantri Kaushal Vikas Yojna and retiring sailors are being provided certificates by National Skill Development Council. Other schools of IN have also been added for Skill Certification Courses namely School for Naval Airmen (SFNA), Naval Provost and Regulating School (NPRS) and School of Naval Oceanology and Metrology (SNOM).

INDIAN AIR FORCE (IAF)

Recruitment of Officers

10. 37 ***Types of Entries:*** There are two modes of induction in the Indian Air Force as Commissioned Officers:

(i) ***UPSC Entry:*** This entry is only applicable for candidates who want to join the Flying Branch of the Air Force as Permanent Commissioned officers. Written exams are held by UPSC twice in a year.

(a) ***NDA Entry:*** This entry is for candidates on completion of 10+2 examination or while appearing for their 12th standard.

(b) ***CDSE Entry:*** This entry is for graduates or for those in final year of graduation.

(ii) ***Non-UPSC Entry:*** Non - UPSC entries cater for both Short Service Commission and Permanent Commission in various branches of the Air Force that is Flying, Ground Duty (Technical Branch) and Ground Duty (Non-Technical Branches).

(a) ***AFCAT Entry:*** Air Force Common Admission Test (AFCAT) is a screening test for graduates and is a common entry for all the branches of the IAF except Permanent Commission in Flying Branch and Meteorology Branch. The Online AFCAT is being conducted twice a year in the month of February & August. The Online AFCAT is now being conducted in association with Centre for Development of Advance Computing (C-DAC), a Government agency. The exam was held on February 25, 2018 at 536 centres spread over 98 cities across India. A total of 94,513 candidates appeared for the AFCAT cycle 01/2018. The second Online AFCAT for selection of officers was conducted on August 18 & 19, 2018 at 342 exam centres in 91 cities across the country. A total of 96,253 appeared in AFCAT which also included Engineering Knowledge Test (EKT) for candidates opting to join the technical branches of IAF. A Supplementary AFCAT exam was conducted for candidates affected by the Kerala Floods on September 22 & 23, 2018 at 15 exam centres located in four cities across Kerala.

(b) Selection process of IAF has continuously evolved. This online system developed in collaboration with C-DAC has not only enhanced the reach and access of remote areas of the country but has taken a giant leap towards strengthening the “Digital India” vision of Government of India.

(c) ***Meteorology Entry:*** This entry is for post graduates who want to join the Meteorology branch of the Air Force.

There is no written examination held for this entry.

(d) ***NCC Special Entry:*** University graduates possessing NCC 'C' Certificate in Air Wing are eligible to apply for this entry. The process of selection is the same except that these candidates do not have to appear for a written exam.

(e) ***SEC Entry:*** This is an entry for the airmen who are already serving in the Indian Air Force.

10. 38 ***Publicity Efforts***

(a) ***Maintenance of Career Website:*** IAF maintains a career website www.careerindianairforce.cdac.in, which contains all the induction and selection related information. The website is used for online registration and conduct of online examination. Updates are fed on the website regarding various stages of selection process i.e. from releasing of advertisement to final merit list.

(b) ***Print Advertisement:*** Advertisement for all the entries is released in Employment News, various magazines and also as newspaper advertisement in vernacular language on pan India basis.

(c) ***Production of TV Spots:*** Three new high quality one minute TV advertisements have been produced and launched to create impact on the target audience. One additional TV Spot 'Just a Girl' portraying socio-economic development of India and the opportunities provided for women has been produced and has been widely appreciated.

(d) ***Hoardings:*** As part of publicity strategy, campaigning through outdoor media is also explored. Over a period of time Air Force has installed as many as 226 IAF Publicity hoardings. These hoardings are maintained on regular basis towards achieving the target of viewership and to gain maximum benefits.

(e) ***Interactive Voice Response System (IVRS):*** During the process of induction, a large number of voice calls on induction queries of repeated nature are resolved through IVRS connected through toll free number 1800-11-2448.

(f) ***Motivational Talks:*** Thrust on motivational lectures and one to one interaction which is the most effective method of publicity has been enhanced for providing guidance to students of premier and rural educational institutes, NCC cadets and Sainik Schools. Specific institutions in geographically displaced regions have been identified and motivational talks have been conducted.

(g) ***Exhibitions and Fairs:*** Air Force participates in various exhibitions and fairs. Publicity stalls were set up at various forums such as 'Youth Festivals', 'Know your Forces', 'North East Calling Event', 'Fest ember at NIT Trichy' etc.

(h) ***Induction Publicity Exhibition Vehicle (IPEV):*** IPEV was launched on October 8, 2015 as a pilot project and has successfully completed Seven road drives in North, East, Central and Southern parts of country. By mid May, 2019 the drive has covered 33,280 km, 535 institutes and interacted one to one with 1,53,163 students.

10. 39 ***Recruitment of Airmen***

(a) As part of modernization of the IAF, new units are being formed to accommodate the latest acquisitions. Resorting to proactive measures, induction has been enhanced to 6850 per

year. Efforts are at hand to further enhance the induction which shall not only help to overcome the existing deficiencies but also to effectively maintain the latest state of art aircrafts and weapon systems.

(b) Presently, 14 Airmen Selection Centres are geographically spread out and provide reasonable access to candidates desirous of joining IAF as airmen. Recruitment in Indian Air Force in airmen cadre is on All India Merit Basis through Scheduled Selection Tests which is conducted twice in a year. It is open to all eligible citizens of the country without any discrimination to caste, creed, religion, region or community. In addition to Scheduled Test, Recruitment Rallies are conducted in remote/ low response/border/ insurgency affected/ naxal affected/tribal areas or hilly districts and island territories of the country to provide opportunities to youth from these regions to join national main stream.

(c) Provisional Select Lists (PSLs) of the successful candidates is published twice a year i.e. April 30 and October 31 each year. Taking forward the Digital India Initiative of the Government of India, the first ever Scheduled Test for Airmen Recruitment (STAR) was conducted successfully through computer based online tests in collaboration with Centre for Development of Advanced Computing (CDAC) Pune. A total of 4,09,169 candidates had registered for the first online STAR examination for Airmen. The second Scheduled test for airmen recruitment (STAR-02/2018) was conducted at 524 Centres in 97 cities across the country from September 13 to 16, 2018. A total of 5,20,604 candidates had registered for the online STAR examination. A total of 4,48,989 candidates had appeared in the online written test. Result of online written test has been uploaded on C-DAC website on October 9, 2018.

10. 40 ***Training***

(a) ***Air Force Academy (AFA), Dundigal:*** The Air Force Academy undertakes the tasks of training of pilots and ground duty officers. Since 1971 the Academy has been meeting the expanding training needs of the IAF and also the Indian Army, Navy and Indian coast Guard. A number of officers and cadets from friendly foreign countries also undertake training at the Academy.

(b) ***Foreign Training:*** Indian Air Force provides training courses to personnel of Friendly Foreign Countries (FFCs) under various schemes of Ministry of External Affairs (MEA) / Ministry of Defence (MoD). These vacancies have been considerably enhanced in the last three years. The increase in number of vacancies granted to trainees from Friendly Foreign Countries (FFCs) has a positive impact through increased defence cooperation. IAF has established training teams in various Friendly Foreign Countries (FFCs) to impart Flying Training. IAF officers are also being nominated to attend courses in various FFCs.

(c) ***Award of B Tech for Air Wing Cadets at NDA:*** All Air Force NDA cadets would be now undergoing B Tech curriculum in 3 + 1 year format. After requisite approval by All India Council for Technical Education (AICTE), the first batch of B Tech air wing cadets has commenced training at NDA from January 2017 and will pass out of NDA in December 2019. Six semesters of the B Tech programme would be conducted at NDA and last two semesters would be conducted at Flying Training Establishments (FTEs). The cadets would be awarded a B Tech degree in Applied Electronics and Communications (AEC) by JNU. A proposal to introduce Mechanical Engineering and Electrical Engineering courses is also being studied.

(d) ***e-Training:*** In line with GoI's Digital India initiative, IAF has taken a lead to bring about a paradigm change in the present training methodology for ab-initio air warriors. Towards this, a pilot e-training project was introduced for 400 ab-initio trainees of Elect fit trade at Electrical and Instrumentation Training Institute (E & ITI) at AF Stn Jalahalli, Bengaluru. Trainees and instructors were provided with 'tablets', integrated through a wireless network. Users are able to refer to training material loaded into a central server at their own place at their own time within the Wi-Fi coverage area of the unit. The Pilot Project (Phase I) to implement e-training has proven to be very successful and is planned to be implemented at all TEs/TIs.

(e) ***Mechanical Transport (MT) Simulator:*** MT simulators have been successfully installed and commissioned at MTTI for conduct of ab-initio training of Auto Tech tradesmen. A total of five simulators in the configuration of one instructor and two pupil stations each has been installed. The simulators have a six degree freedom of movement and give a real feel of motion. Training on simulators will increase the efficiency of training with added safety and savings of cost, time and effort.

(f) ***Mapping of Air Force Qualifications in terms of National Skill Qualification Levels:*** IAF qualifications have been granted equivalence with National Skills Qualification Framework (NSQF) levels and have been uploaded in National Qualifications Register (NQR) by National Skill Development Agency (NSDA). This will motivate personnel to upgrade their skills thereby boosting professionalism in IAF and helping the air warriors in gaining employment after retirement.

(g) ***Accreditation of GEB and REBs with NABET:*** Directorate of Education, Ground crew Examining Board (GEB) and Reginal Examining Boards (REBs) have been accredited as per international standard, ISO/IEC 17024:2012 by National Accreditation Board for Education and Training (NABET), a constituent board of Quality Council of India (QCI). Accreditation has established IAF as a professional force having assessment standards conforming to international standards enhancing image of IAF as a highly professional force.

INDIAN COAST GUARD (ICG)

10.41 ***Recruitment of Officers:*** The Officers are recruited into Coast Guard bi-annually. The vacancies for Assistant Commandant in Coast Guard are advertised in Employment News and leading Newspapers in the month of December/January and June/ July. Five years relaxation of age for SC/ST and 3 years for OBC is admissible for recruitment. The Officers are recruited through Coast Guard Selection Board (CGSB) in the following streams:

(a) ***General Duty:*** Male/ Female candidates between the age group of 21 - 25 years having Bachelor's Degree of a recognized University with Mathematics and Physics as subject up to Intermediate or 12th standard of 10+2+3 scheme of education or equivalent are eligible to apply for officers as General Duty stream.

(b) ***General Duty (Pilot/ Navigator):*** Male/ Female candidates between the age group of 21-25 years having Bachelor's Degree of a recognized University with Mathematics and Physics as subjects up to Intermediate or 12th standard of 10+2+3 scheme of education or equivalent are eligible to apply for officers as General Duty (Pilot / Navigator) stream.

(c) ***General Duty (Commercial Pilot License Short Service Entry):*** Male/ Female candidates between age group of 19-25 years having 12th Class or equivalent passed and in possession current Commercial Pilot License (CPL) issued/ validated by Director General Civil Aviation on the date of submission of application are eligible to apply for Officers in CPL Short Service Entry.

(d) ***General Duty (Short Service Appointment Scheme) for Women:*** Women candidates between the age group of 21 - 25 years having Bachelor's Degree of a recognized University with Mathematics and Physics as subjects up to Intermediate or 12th standard of 10+2+3 scheme of education or equivalent are eligible to apply for officers as General Duty (Short Service Appointment Scheme) stream.

(e) ***Technical Branch:*** Male candidates between age group of 21-25 years with degree in Engineering (Naval architecture/ Mechanical/ Marine/Automotive/ Mechtronics/ Industrial & Production/ Metallurgy/ Design/ Aeronautical/ Aerospace/ Electrical/ Electronics/ Telecommunication/ Instrumentation/ Instrumentation and control/ Electronic & Communication/ Power Engineering/ Power Electronics) or equivalent qualification are eligible to apply for officers in Technical stream.

(f) ***Law Branch:*** Male/Female candidates between the age group of 21-30 years having Degree in Law are eligible to apply for Officer in Law stream. However, the age is relaxable up to five years in case of personnel serving in the Coast Guard Organisation or equivalent rank in Army or Navy or Air Force and for the candidates belonging to the Scheduled Castes or Scheduled Tribes, three years for the Other Backward Classes.

10.42 ***Induction of Sub-ordinate Officers as officer:*** Suitable serving Subordinate Officers of the Coast Guard of the rank of Pradhan Adhikari or Uttam Adhikari with one year experience and Adhikari with two years experience are eligible for induction as Officers, subject to qualifying the Departmental Examination as prescribed by the Director General Coast Guard.

10.43 ***Recruitment of Personnel Below Officers Rank (PBORs):*** The PBORs are recruited into Coast Guard bi-annually. The vacancies for PBORs in Coast Guard are advertised in Employment News and leading Newspapers in the month of December/January and June/July. Five years relaxation of age for SC/ST and 3 years for OBC is admissible for recruitment. The PBORs are recruited in the following main streams:

(a) ***Yantrik:*** Male candidates having passed matriculation with three years diploma in Mechanical/ Electrical/Electronic Engineering and between the age group of 18 - 22 years are eligible to apply as Yantrik.

(b) ***Navik (General Duty):*** Male candidates having passed 12th class with Mathematics and Physics and between age group of 18 - 22 years are eligible to apply as Navik (General Duty).

(c) ***Navik (Domestic Branch):*** Male candidates having passed Matric and between age group of 18 - 22 years are eligible to apply as Navik (Domestic Branch)

(d) ***Enrolled Followers:*** Male candidates having passed Matric or Industrial Training Institute or equivalent between age group of 18-25 years are eligible to apply as Enrolled Followers.

(e) ***No interview for 'B' & 'C' posts:*** In accordance with GoI directives, the interviews for all Group 'B' and 'C' posts has been discontinued and only skill test is being conducted for suitability for these posts.

OTHER ORGANISATIONS

Sainik Schools

10.44 The Sainik Schools are established as a joint venture of the Central and State Governments and are under the overall governance of Sainik Schools Society, Ministry of Defence. At present, there are 28 Sainik Schools located in various parts of the country. There is a growing demand from many States to open new Sainik Schools. The states of Andhra Pradesh, Haryana, Bihar and Karnataka have two Sainik Schools each. The Memorandum of Agreement has been signed with respective State Government to set up three new Sainik Schools in Uttar Pradesh at Mainpuri, Amethi and Jhansi, one in Rajasthan at Alwar, one each in Uttarakhand (Rudraprayag), Maharashtra (Chandrapur), Odisha (Sambalpur) and Telangala (Warangal). Two new Sainik Schools i.e. Sainik School Jhunjhunu, Rajasthan and Sainik School East Siang, Arunachal Pradesh commenced in 2018.

10.45 The objectives of Sainik Schools include bringing quality Public School education within the reach of common man, all round development of a child's personality in order to prepare him for entry into National Defence Academy and to remove regional imbalance in the officers cadre of the Armed Forces. Approximately one fourth of cadets in each batch of National Defence Academy is from Sainik Schools. For the 140 NDA/INA Course which commenced in July 2018 with course strength of 348, 99 Cadets are from Sainik Schools which is about 28.45% of NDA course strength.

10.46 Sainik Schools admit boys into classes VI and IX. Their age should be 10-12 years for classes VI and 13-15 years for class IX as on March 31 of the year in which admission is sought. Admissions are made strictly as per the order of merit on the basis of an All India Sainik School Entrance Examination held in January each year. OMR based entrance exam commenced w.e.f. 2017-18.

10.47 The Sainik Schools Society has taken a number of measures to achieve academic excellence which has also resulted in achieving record higher Board and NDA results. Towards this end every school is conducting specialised Training/Workshops for the cadets as well as for the staff to improve their performance.

Rashtriya Military Schools (RMS)

10.48 Rashtriya Military Schools are premier and reputed residential public schools of the country run by the Ministry of Defence, Government of India under the aegis of Directorate General of Military Training. These Schools are located Chail in Himachal Pradesh, Ajmer and Dholpur in Rajasthan, Belgaum and Bangalore in Karnataka. These schools are affiliated to CBSE and the aim of schools is "to impart quality education and prepare the cadets to join Defence Services through NDA".

10.49 Rashtriya Military Schools admit boys through a Common Entrance Test (CET) and interview. The CET written examination for Class VI & IX is fully automated through Optical mark Reader (OMR) based. The candidates are tested in four subjects i.e. English, Intelligence Test, Mathematics General Knowledge and Interview. 70% of the seats is reserved for the wards of Junior Commissioned Officers (JCOs), Other Ranks (ORs) of Army and their equivalent in Navy & Air Force and rest 30% seats is reserved for wards of Commissioned Officers and civilians. 15% and 7½% of the seat in each category are reserved for SC and ST boys respectively. 50 seats (not more than 15 in either of the school) are separately earmarked for the wards of person who 'Killed in Action' (KIA) category during war or peace.

National Defence Academy (NDA)

10.50 NDA is a premier Tri-Service institution which trains cadets of all three Services before inducting them into their respective pre commissioning training

academies. Keeping in mind the shortage of officers in the Indian Armed Forces and the consequent urgency for making up the deficiency, the intake capacity of NDA was recently enhanced from 1800 cadets to 1920 cadets with the sanction for raising an additional Squadron at NDA i.e. 16th Squadron. The construction work for building of 16th Squadron commenced in 2015 and has been occupied during Spring Term 2019 with arrival of 141 Course. A total of 31 Cadets from Friendly Foreign Countries passed out from NDA in 2018 totalling to 843 foreign cadets by May 2019. Three NDA cadets visited Nanjing China and three Cadets visited Brazilian Military Academy, RIO in 2018. Cadets from NDA Japan visited NDA Khadakwasla under Cadet Exchange Programme with NDA Japan in 2018-19. NDA cadets have displayed their acumen in various competition in sports, cultural and academic fronts.

Military Institute of Technology (MILIT)

10.51 MILIT is a Tri-Services Training establishment in 1952 which conducts courses for Indian and International Military Officers and DRDO Scientists. The flagship courses conducted at MILIT are TSOC (Army, Air Force and Navy), TSOC (Air Force), TSOC (Navy) and NTSC alongwith 18 other courses of varying durations which primarily deal to military technology. The institute is located at Girinagar Complex, Pune. It also provides Adm & Faculty support to DIAT in M-Tech courses/other courses at DIAT(DU). MILIT has alumni strength of over 20,000 officers of three Services, DRDO, DGQA and Defence PSU. The institute has affiliation with Savitri Phule, Pune University for award of M.Sc (Mil Tech) degrees to Officers undergoing DSTSC (Army, Air Force and Navy). The Valedictory Function of TSOC Courses (Army, Navy & Air Force) were held on May 18, 2018. 146 officers of the Indian Armed Forces and 05 officers of a friendly foreign country (Sri Lanka) passed out upon successful completion of the Technical Staff Officers Course (TSOC) and Naval Technical Staff Course (NTSC) from the portals of the Military Institute of Technology (MILIT). The institute has affiliation with Savitri Phule, Pune University for award of M.Sc degrees to Officers undergoing TSOC and NTSC. The institute has several labs and facilities for imparting technical education including functional arms, Armoured fighting vehicles, aircraft statue models.

Rashtriya Indian Military College (RIMC)

10.52 Rashtriya Indian Military College (RIMC) was established in 1922 with the aim to prepare selected boys to join National Defence Academy (NDA) and Naval Academy (NAVAC). 25 cadets are admitted in each term twice a year (January and July) on the basis of All India Entrance Examination. Selection of boys for RIMC is through a written examination cum viva voce conducted through the State Governments. Seats for respective States are reserved based on population. The College admits boys in Class VIII.

Indian Military Academy (IMA), Dehradun

10.53 Founded in 1932, Indian Military Academy, Dehradun aims at the fullest development of intellectual, moral and physical qualities of persons joining the Army as officers. The various modes of entry into IMA are:

(a) On graduation from NDA.

(b) On graduation from Army Cadet College, which is a Wing of the IMA itself.

(c) Direct Entry graduate cadets, who qualify the Union Public Service Commission Exam and get through the Service Selection Board.

(d) For Technical Graduate's Course.(TGC)

10.54 The IMA also imparts training to Gentlemen Cadets from friendly countries.

Officers Training Academy (OTA), Chennai

10.55 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 trains cadets for Short Service Commission.

10.56 With the entry of women officers in the Army since September, 1992, around 75-80 lady officers now get commissioned from OTA every year in Army Service Corps, Judge Advocate General's Department, Corps of Engineers, Signals and Electrical, Army Education Corps and Mechanical Engineers.

10.57 OTA imparts pre-commission training for the following:

(a) Short Service Commission GCs/LCs (Non Technical) for Graduates.

(b) Short Service Commission GCs/LCs (Technical) for Graduates.

(c) Judge Advocate General (JAG) Course for GCs/LCs.

Officers Training Academy (OTA), Gaya

10.58 The Cabinet Committee on Security (CCS) has approved setting up of second Officers Training Academy (OTA) at Gaya, Bihar in December, 2009. Training at this academy commenced in July 2011. At present 222 cadets are undergoing training at OTA, Gaya. At present Academy is imparting training to 10+2 Technical Entry Scheme (TES) and Special Commissioned Officers Courses (SCO).

Army War College, Mhow

10.59 The Army War College, Mhow is the premier Indian Army institution for all arms training at tactical and operational levels in an inter services environment and is the Alma Mater to all officers of the Indian Army. The college imparts professional military knowledge in the art of warfare, with special emphasis on jointmanship and revolution in military affairs, in an environment conducive to learning. The Army War College, also imparts leadership training for all officers of the Indian Army and performs the important function of encouraging research and evolution of new concepts and doctrines in the fields of tactics and logistics. Officers from friendly foreign countries undergoing various courses alongside Indian Army officers at the Army War College are oriented with the global and regional strategic perspective of India and the nuances of higher defence management.

Junior Leaders Wing (JLW), Belgaum

10.60 The Junior Leaders Wing at Belgaum is training junior Officers, JCOs and NCOs in Sub-Unit Level Tactical and special Mission Techniques to enable them to carry out assigned operational mission in varied terrain under severe stress and strain and be able to command and administer their Sub-Units effectively in war and peace. It trains officers and NCOs of Army, Para Military Forces, Central Police Organisation and friendly foreign countries in commando type of operations and makes them capable of either forming part of special mission groups or leading independent mission in all types of terrain and operational environment.

Junior Leaders Academy (JLA), Bareilly

10.61 JLA, Bareilly, an all arms institute is imparting leadership and management training to the Junior Leaders (JCOs and Sr NCOs) of the Indian Army, Para Military Forces and Friendly Foreign Countries with a view to facilitating in actualising their potential for present as well as future roles and conflicts. The institution is imparting training to 8208 students every year.

High Altitude Warfare School (HAWS), Gulmarg

10.62 The aim of the school is to train selected personnel in all aspects of high altitude mountain warfare (MW) and develop techniques for fighting in such terrains. HAWS conducts two series of courses viz, MW and Winter Warfare (WW) at Sonamarg and Gulmarg respectively for officers, JCOs and NCOs. The training periods broadly run from January to April (WW series) and May to October (MW series). Personnel from the school have scaled some to the highest peaks in the world including Mount Everest, Mount Kanchenjunga and Mount McKinley in the USA.

Counter Insurgency & Jungle Warfare School (CIJW), Veirangte

10.63 The CIJWS conducts low intensity conflict operation (LICO) course to train officers, JCOs / NCOs of Indian Army, Indian Navy, Indian Air Force, central armed police force, central police organisations and from friendly foreign countries, for operating successfully in a dynamic counter insurgency /counter terrorism (CI / CT) environment. It also imparts pre induction training for units prior to their induction to insurgency areas in the North East. It is the nodal agency for evaluation of new concepts and doctrines in the field of CI / CT operations.

Counter Insurgency Pre Induction Training Battle Schools

10.64 Since the capacity of CIJW school was limited and on account of peculiar operational situation and administrative problems of movement of Units, it was considered necessary to impart training to units at places closer to their areas of operation. Therefore, Corps Battle schools from within the resources of the Army have been established at Kheru, Sarol and Bhalra for units moving into Northern Command. Besides training for counter insurgency, these schools especially in Northern Commands are training units for their role along the Line of Control (LOC) and in high altitude areas.

Infantry School, Mhow

10.65 The Infantry School is the largest and oldest military training institution of the Indian Army and conducts Young Officers, Platoon Weapon, Mortar, Anti Tank & Guided Missile, Medium Machine Gun & Automatic Grenade Launcher, Section Commanders, Automatic Data Processing, Sniper and Battalion Support Weapon Courses. In addition, it is also conducting Infantry Clerks Training at Infantry Clerk Training Wing. The institution is not only training officers, JCOs and ORs of Infantry but also of other arms and services including personnel from friendly foreign countries, para military forces and civil armed police forces.

College of Materials Management

10.66 The college owes its lineage to Indian Army Ordnance Corps (IAOC) School of Instruction established at Kirkee in October, 1925. The School was later re-designated as IAOC Training Centre in February, 1939 and shifted to its present location at Jabalpur. In January, 1950, the IAOC School became the Army Ordnance Corps (AOC) School. The AOC School was renamed as College of Materials Management (CMM) and affiliated to the University of Jabalpur (Rani Durgavati Vishwa Vidyalaya) in 1987. The CMM attained autonomous status in 1990. The College is also registered as a 'Government College' with the University Grant Commission. It also has the approval of All India Council of Technical Education (AICTE).

10.67 The College being the premier Category 'A' Establishment of the Indian Army makes an exceptional contribution in imparting effective and dynamic training to all combatants and civilian of Army Ordnance Corps, selected personnel of all

arms, services and Para Military Forces enabling them to discharge logistics and supply chain functions, at different level across the entire spectrum of conflict, both in peace and war. The College continues to empower young leaders and soldiers with information Technology solutions to manage the inventory as the Corps competency lies in evolving processes to ensure availability of inventory' just in time' of requirement. The College also imparts special logistics training to batches of the Afghan National Army and all arms Administrative and Logistics Management Course (ALMC). With a focused approach considerable improvement has been made in the training facilities, encouraging brain storming, generation of innovative ideas and assimilation of best management techniques. Amongst various initiatives taken by College, the award of degree of MBA by Rani Durgawati University has been changed from Materials Management to Supply Chain Management with a view to promoting greater acceptance and utility of the educational qualification acquired by the officers of Indian Army. The National Assessment and Accreditation Council (NAAC), an autonomous body constituted under the UGC Act has awarded Five Star (Highest) Accreditation to the College. The College has also accord ISO 9001 : 2015 certificate of registration with effect from October 14, 2017.

10. 68 The College has been awarded "General Officer Commanding-In-Chief, Army Training Command Unit Citation" on Republic Day 2017. This is the first time that the College has been recognised for its meritorious in all spheres of Training as well as Administration.

School of Artillery, Deolali

10.69 The School of Artillery, Deolali, the academic centre for various sub-disciplines of the science and methodology of artillery warfare imparts technical training to Officers, JCOs and NCOs on artillery weapons and systems including training of pilots for Air Observation Post duties. Besides, the review of doctrines, study and trials of artillery equipment, both India and Foreign, is also carried out.

10.70 Apart from a large number of Officers, JCOs and NCOs of the Indian Army, the school has also trained several officers and personnel from Friendly Foreign Countries during the year.

Army Air Defence College, Gopalpur

10.71 The Army Air Defence College (AADC) earlier functioned as a wing of School of Artillery, Deolali till October, 1989, when it was moved to Gopalpur before separation of Air Defence Artillery from the main branch of Artillery. The college trains personnel of Air Defence Artillery, others arms and armed forces personnel Friendly Foreign Countries in Air Defence related subjects.

10.72 The AADC conducts a number of courses. Some of the courses are Long Gunnery Staff Course (Officers), Young Officers Course, Electronic Warfare Course, Senior Command Air Defence Course, Long Gunnery Staff Course, Junior Commissioned Officer/ Non Commissioned Officer, Technical Fire Control Course, Aircraft Recognition Course, Unit Instructor and Crew Based Training and Automated Data Processing Course.

Army Education Corps (AEC) Training College and Centre, Panchmarhi

10.73 The AEC Training College & Centre, Panchmarhi is a Defence seat of Excellence in Educational Training in the Armed Forces. It is also an Autonomous College affiliated to Barkatullah University, Bhopal with academic and administrative powers to design, conduct, test and award its own courses and degree.

10.74 The Department of Map Craft runs a ten week long Map Reading Instructors Course for AEC Officer and JCOs/ORs of all Arms and Services of Indian Army,

Para Military Forces personnel and personnel from Friendly Foreign Countries.

10.75 The 18 week Unit Education Instructor (UEI) Course trains ORs from all Army and Services of the Indian Army to be effective instructor in their units.

10.76 The Foreign Language Wing (FLW) of AEC Training College and Centre, is a premier node of foreign language training to tri-services including the personal from Para Mil Forces (PMF) and Friendly Foreign Countries (FFCs) in languages viz. Chines, Tibetan, Dzongkha, Burmese, Pushto, Arabic, Sinhala, Russian and Persian. The 26 weeks long English Language Course is being conducted for Officers of Friendly Foreign Countries to teach them English Communication Skills.

Military Music Wing, Panchmarhi

10.77 The Military Music Wing (MMW) was raised in October, 1950 under the patronage of the then C-in-C General (later Field Marshal) K.M. Carriappa, OBE as a part of the AEC Training College & Centre, Panchmarhi. The Military Music Wing has excelled in maintain the standard of military music in India through a diverse range of courses designed to train the musicians. The MMW is being converted to Joint Services Training Institute on Military Music, catering the need of Tri-services in Mil Music Courses.

Remount and Veterinary Corps Centre and School, Meerut

10.78 The remount Veterinary Corps (RVC) Centre and College, located in Meerut Cantt aims at training Officers, JCOs and ORs of all Arms and Services, PMF, CAPF, IN and FFC on animal management and veterinary aspects. Eleven courses for Officers and seven for JCOs and ORs are conducted. The total strength of students trained is 250.

Army Sports Institute (ASI), Pune

10.79 With a view to producing prospective medal winners at international sporting events, the Army Sports Institute at Pune has been set up alongwith Army Sports Nodes in selected disciplines at various places in the country. Appropriate funds have been earmarked for state-of-the-art infrastructure and equipment coupled with food, habitat, foreign exposure and training under foreign coaches.

10.80 About 213 elite sportsmen of the Army are being trained in seven disciplines namely Athletics, Archery, Boxing, Diving, Fencing, Weightlifting and Wrestling. In addition, around 161 talented young boys in the age group of 11 to 15 years are also being trained in the Boys Sports Company in conjunction with Sports Authority of India (SAI). The sportsmen are trained by experienced Indian and Foreign coaches and given competition exposure both in India and abroad. The Sports Medicine Science Centre (SMC) in the institute is one of its kind in the country. A large number of athletes and sportsmen of node are participating in National Camp and at the same time National Camp are also being planned to be held in the Node.

Army Institute of Physical Training (AIPT), Pune

10.81 Army School of Physical Training (ASPT) was renamed Army Institute of Physical Training (AIPT) in 2005. It is a premier institution of imparting systematic and comprehensive instruction to personnel of the Army regarding the conduct of physical training in units and sub-units. It also imparts basic training in Sports and Games with a view to improving the standards in the Army and complement physical training through recreation in games and sports. These courses are attended by Officers, JCOs and ORs of the Army, Para Military Forces and service personnel from Friendly Foreign Countries. It is conducting training Courses for JCOs and ORs in six allied subjects in Boxing, Volleyball,

Basketball, Swimming and Life Saving, Karate and Yoga Courses.

Combat Army Aviator Training School (CAATS), Nasik Road

10.82 Combat Army Aviator School (CAATS) raised at Nashik Road in May 2003 aims to train aviators in aviation skills and handling of aviation units in various operations of war, train aviation instructor to develop Standard Operating Procedure (SOPs) and also to assist Army Training Command in development of aviation tactical doctrine in synergy with ground troops. The courses identified to be run in the school are Pre-Basic Pilot Course, Basic Army Aviation Course, Pre Qualified Flying Instructor Course, Aviation Instructor Helicopter Course, Helicopter Conversion on Type, Flight Commander Course and New Equipment Course.

Military College of Electronics and Mechanical Engineering (MCEME), Secunderabad

10.83 The role of MCEME is to provide technical education to all ranks of EME, including civilians, in various disciplines of engineering, weapon systems and equipment with special reference to their maintenance, repair and inspection and to provide training and management and tactics at senior, middle and supervisory levels. The MCEME is designed to train 1760 personnel (all ranks). It conducts 13 courses for officers and 61 different courses for JCOs/ORs.

10.84 Computer Based Training Packages (CBTs) and digitized charts have been developed which contain exhaustive technical information on the functioning, repair, maintenance, servicing aspects and the correct usage of the electrical and electronics portion of equipment which is being taught at MCEME.

Corps of Military Police Centre and School, Bangalore

10.85 The role of School is to train officers and JCOs/ORs on Military Police duties in Law Enforcements, Investigation, vigilance and Traffic Management. Four courses for Officers and Nineteen Courses for JCOs/ORs of CMP Corps and three tailor made courses on Military Policing cadre for Afghan National Army & Sri Lanka Army are being conducted. The total strength of students being trained in a calendar year is 941.

Army Airborne Training School (AATS), Agra

10.86 The Army Airborne Training School (AATS) was previously designated as Army Air Transport Support School (AATS). In response to the need to concentrate all Airborne Training under one single agency, the Army Air Transport Support School was re-designated as Army Airborne School with effect from January 15, 1992.

Military College of Telecommunication Engineering (MCTE), Mhow

10.87 MCTE, Mhow trains Signal Officers in Combat Communication Engineering, Computer technology, Regimental Signal Communications and Cryptology. Besides the five Training Faculties and Wings, the College has a Department of Administration to provide administrative and logistics support to the staff and the students, a Conceptual Studies Cell to evolve communication doctrines and produce training material, a modern and well- stocked library and an in-house printing press. Trainees are provided with an opportunity to study and train in a formal setting so as to equip them with the requisite skills, knowledge and abilities for current as well as future tasks.

Military Intelligence Training School and Depot, (MINTSD), Pune

10.88 The Military Intelligence Training School and Depot (MINTSD) is a premier establishment responsible for imparting training on intelligence Acquisition, Counter Intelligence and Security aspects to all ranks of the Indian Army, Navy, Air Force and Para Military Forces and personnel of Friendly Foreign Countries. Civilian Officers of the Department of Revenue Intelligence are also trained at this establishment. The School has the capacity to impart training to 90 officers and 1390 junior Commissioned Officers/Non Commissioned Officers of all the arms at a time. The school trains approximately over 350 Officers and 1100 Junior Commissioned Officers every year.

Electrical and Mechanical Engineering School (EME), Vadodara

10.89 The EME School conducts post graduate level courses for officers and diploma certificate level courses for JCOS/ORs. A number of foreign officers and JCOs/ORs from Friendly Foreign Countries have been attending various courses conducted at EME School.

Institute of Military Law, Kamptee

10.90 The Institute of Military Law was established at Shimla. In 1989, the institute was shifted to Kamptee. The charter of duties of the School includes a comprehensive system of the legal education for officers of all arms and services of the Army. The school undertakes wide-ranging research, development and dissemination work in the field of Military and allied laws.

Armoured Corps Centre and School (ACC&S), Ahmednagar

10.91 In 1948, the Training Wings, the Recruits Training Centre and Armoured Corps Depot and Records were shifted to Ahmednagar where the Fighting Vehicles Schools were already functioning and they were all amalgamated to form the Armoured Corps Centre and School and Armoured Corps Records. It has six wings namely School of Armoured Welfare, School of Technical Training Basic Training Regiment, Driving and Maintenance Regiment, Automotive Regiment and Armament and Electronics Regiment for specified training in these disciplines.

Foreign Training

10.92 ***Training for Friendly Foreign Countries in India:*** With significant increase in scope and reach of India's foreign training cooperation, there has been a distinct rise in requests from countries across the world to engage with the Indian Army, reflecting upon the Indian Army's professionalism and training standards. Demands for subscription to courses from the Friendly Foreign Countries have been continuously increasing. In training year, 2018-19 a total of 2813 vacancies in 238 different courses have been offered to 56 Friendly Foreign Countries. There has been an increase of offer of more than 300 vacancies in the last five years.

10.93 ***Tailor-Made / Group Training:*** Tailor-made courses/ Group Training for capability building and professional enhancement in selected fields are being conducted to address training needs / aspirations of Friendly Foreign Countries in the neighbourhood and for countries which are of strategic importance to India. In current training year, 49 such courses to train 1153 trainees have been planned from Afghanistan, Sri Lanka, Tajikistan, Turkmenistan, Nigeria, Myanmar and Bangladesh.

10.94 ***Training of Indian Army Abroad:*** Subscriptions of courses abroad is also an important facet of our foreign training endeavours with a aim to enhance military learning, technical advancement and defence

cooperation through training interaction with Friendly Foreign Countries. The number of personnel undergoing courses abroad has increased from 58 in 2013-14 to 78 in the present financial year. It is aimed to subscribe more number of courses in niche domains in future.

10.95 ***Training Visits / Exchanges by Personnel from Friendly Foreign Countries:*** Visit of delegations to / from Indian Army training establishments and exchange programmes with many Friendly Foreign Countries have been conducted as part of our defence engagement policy. A total of 14 inbound visits of 137 personnel from 14 Friendly Foreign Countries and 16 outbound visits of 164 personnel to 16 friendly foreign countries have been progressed / planned in this year.

Army Marksmanship Unit (AMU), Mhow

10.96 Shooting has been the forte of the Army. Currently, around 85 ace shooters of the Army are under training in AMU. Two Olympic Silver medals have been won by Shooters during Athens Olympics 2004 and London Olympics 2012. In addition, one Gold and one Bronze medal have been won by Sub Jitu Rai in ISSF World Cup 2017.

Army Rowing Node (ARN), Pune

10.97 ARN has a world class rowing channel of 2.2 km length, only channel of its kind in the world. Currently around 80 top oarsmen of the Army are being trained in the node. Army rowers have done the country proud in various international competitions including Asian Games and Olympics.

Army Yachting Node (AYN), Mumbai

10.98 Army sailors trained at AYN have dominated the national circuit and won scores of medals at international level to include Asian Games and have also participated in Olympics. Currently about 60 sailors of the Army are training in various classes of boats at AYN, Mumbai.

Army Equestrian Node (AEN), Meerut

10.99 AEN has world class training infrastructure for show-jumping, dressage and Eventing. The Army Equestrian Team has done the country proud by winning international medals at continental level (Asian Games).

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CHAPTER **11**

RESETTLEMENT AND WELFARE OF EX-SERVICEMEN

11 RESETTLEMENT AND WELFARE OF EX-SERVICEMEN

11.1 The Department of Ex-Servicemen Welfare (DESW) formulates various policies and programmes for the welfare and resettlement of Ex-Servicemen (ESM) in the country. The Department has two Divisions viz. Resettlement and Pension and it has 3 attached offices namely, Kendriya Sainik Board Secretariat (KSB Secretariat), Directorate General (Resettlement) (DGR) and Central Organisation, Ex-Servicemen Contributory Health Scheme, (CO, ECHS). KSB Secretariat is responsible for the welfare of Ex-Servicemen and their dependents and also for the administration of welfare funds. KSB Sectt. is assisted in its task by 32 Rajya Sainik Boards (RSBs) and 398 Zila Sainik Boards (ZSBs), which are under the administrative control of respective State Governments/Union Territory Administrations. The office of Directorate General of Resettlement implements various Policies/ Schemes/ Programmes for pre and post retirement training, re-employment and self-employment etc. of ESM. The DGR is assisted in its task by 5 Directorates of Resettlement Zones(DRZs) at each of the 5 Commands. CO, ECHS is responsible for healthcare and medical needs of Ex-Servicemen and their dependents.

Welfare

11.2 KSB Secretariat is the apex body of the Government of India responsible for implementing Central Government policies for rehabilitation and welfare of war-widows/disabled soldiers, ex-servicemen and their dependents. The welfare schemes are implemented through RSBs located in State capitals and ZSBs located at District level. The establishment expenses of RSBs/ZSBs are shared by the Central and tate Governments/UT Administrations. Funding pattern is 75:25 in respect of special category states, namely, Arunachal Pradesh, Assam, Jammu and Kashmir, Meghalaya, Mizoram, Manipur, Nagaland, Sikkim, Tripura, Himachal Pradesh and Uttarakhand, and 60:40 in the case of other States/UTs. The Central share provided to the states/UTs towards establishment/maintenance of RSBs/ZSBs is reimbursed from the Defence Services Estimate (DSE) budget allocated to KSB Secretariat for this purpose. A sum of ₹ 36.52 crore has been disbursed as Central share up to March 31, 2019.

11.3 In order to provide suitable and affordable accommodation to Ex-Servicemen during their short visits to the State Capital/District HQs for settlement of their pension cases and other matters like availing facilities of CSD Canteen, hospitals etc. KSB Secretariat shares 50% cost of construction of Sainik Rest House (SRHs) out of DSE. The SRHs are required to be maintained by State Governments/UT Administrations from their own resources/funds. The CSRH would help in resolving boarding/lodging problems of ESM and their widows visiting Delhi.

Armed Force Flag Day

11.4 Armed Forces Flag Day is commemorated on 7th December every year across the country to commemorate the sacrifices made by the armed forces personnel for the country. On this day, token flags are pinned and voluntary contributions collected from public for welfare/ rehabilitation of war-widows/ disabled ESM and their dependents. Armed Forces Flag Day was celebrated on December 7, 2018. During the

period from December 1 to 7, 2018 various activities e.g. telecast of T.V. spots, messages from Celebrities/ icons, use of print / social media for creating awareness about the significance of the Flag Day were undertaken.

Officials of KSB Secretariat with President of India on December 7, 2018 for Flag Day Ceremony

Officials of KSB Secretariat with Prime Minister on December7, 2018 for Flag Day Ceremony

Armed Force Flag Day Fund

11.5 Apart from the DSE Budget, Armed Forces Flag Day Fund (AFFDF) is the major source of funding for welfare and rehabilitation of war widows, ESM and their dependents. Out of the interest earned on the AFFDF Corpus, 7.5% is ploughed back into the corpus and balance is used to fund the welfare and rehabilitation schemes for ESM/dependents. A sum of ₹ 29.16 crore has been collected upto March 31, 2019. The Fund is administered by KSB Secretariat under the aegis of its Management Committee headed by Raksha Mantri and Executive Committee headed by Secretary, Department of Ex-servicemen Welfare.

Raksha Mantri Ex-Servicemen Welfare Fund (RMEWF) Schemes

11.6 Financial assistance under RMEWF is provided for identified personal needs e.g. Penury Grant, Children Education and Marriage Grants, Medical Grant etc. of Ex-Servicemen/ their dependents. During the financial year 2018-19 (till March 31, 2019) financial assistance of ₹ 64.53 crore has been released in favour of the Ex-Servicemen/ their dependents under RMEWF.

Army Battle Casualties Welfare Fund

11.7 Army Battle Casualties Welfare Fund (ABCWF) has been set up in Ministry of Defence, D/o Ex-Servicemen Welfare following a large number of requests to Raksha Mantri from members of general public who offered to provide monetary assistance to the families of battle casualties especially after Siachen incident in February 2016 in which 10 soldiers were buried in an avalanche. The fund has been created under The Charitable Endowments Act, 1890. Deputy Secretary has been appointed the Custodian/Treasurer of the Fund by Raksha Mantri.

The management and administration of the Fund will be overseen by a Managing Committee headed by Raksha Mantri.

Financial assistance of ₹ 2.00 lakh is provided to the army battle casualties which are fatal, 60% and above disability and battle causalities invalided out due to disability and ₹ 1.00 lakh to disability less than 60%. This will be in addition to financial assistance from Army Groups Insurance, ex-gratia and assistance from Army Welfare Fund.

Prime Minister's Scholarship Scheme (PMSS)

11.8 To support higher technical/professional education of dependent wards/ widows of ex-servicemen and Ex Indian Coast Guard personnel, the scheme was introduced in 2006. 5500 scholarships are awarded annually under this scheme to the wards and widows of ex-servicemen. The scheme is funded out of National Defence Fund administered by Prime Minister's Office. The amount of scholarships is ₹ 2,000/- for boys and ₹ 2,250/- for girls per month and paid annually. An amount of ₹ 39.50 crore has been disbursed to 15287 beneficiaries w.e.f. January 1, 2018 to March 31, 2019.

Other Welfare Schemes of AFFDF

11.9 ***Financial Assistance for Serious Diseases:*** Financial assistance up to 90% and 75% of total expenditure subject to maximum ₹ 1.25 lakh (for heart ailments, joint replacement etc.) and ₹ 0.75 lakh per year (for treatment of cancer and dialysis) is provided to non-pensioners Personnel Below Officer Ranks (PBORs) and officers including their dependents, respectively. This scheme is also applicable for the Indian ESM residing in Nepal till ECHS becomes operational in the country. An amount of ₹ 10.8 lakh has been disbursed during the financial year 2018-19 (till March 31, 2019).

11.10 ***Financial Assistance for Purchase of Modified Scooter:*** Financial assistance of ₹ 57,500/- is provided for procurement of modified scooter for ESM with 50% or more disability who became disabled after retirement from service. An amount of ₹ 7.81 lakh has been disbursed during the financial year 2018-19 (till March 31, 2019).

11.11 ***Grant to War Memorial Hostels (WMHs):*** War Memorial Hostels are being run by the respective Regimental Centre of the Indian Army for welfare of the wards of ex-servicemen / war widows. Under this scheme a grant of ₹ 1350/- per month per child is provided to the wards of war widows/war disabled. ₹ 31.28 lakh has been disbursed upto March 31, 2019 under the scheme.

11.12 ***Grants to Paraplegic Rehabilitation Centres (PRCs):*** In addition to ₹ 30,000/- per annum per inmate, annual grant or ₹ 20.00 lakh (enhanced to ₹ 1.00 crore w.e.f. April 2017 in respect of PRC Kirkee) and ₹ 10.00 lakh to PRC Mohali is provided for upkeep/maintenance. These centres are being run as autonomous organizations for rehabilitation of paraplegic/tetraplegic ESM. ₹ 150.67 lakh has been disbursed upto March 31, 2019.

11.13 ***Reservation of Seats in Medical/Dental Colleges:*** KSB Secretariat is allotted MBBS & BDS seats by the Ministry of Health and Family Welfare as the Government of India Nominee for wards of ESM. A total 20 seats were allotted and disbursed for the Academic Year 2018-19.

11.14 ***Zonal Meetings:*** The following zonal meetings were conducted during the current financial year:

(a) 3rd West Zone Meeting of Directors, DSW comprising States/UTs of Goa, Gujarat, Maharashtra and Rajasthanwas held on November 5, 2018 at Jaipur, Rajasthan under the chairpersonship of Secretary, ESW. The meeting was hosted by RSB Rajasthan.

(b) 3rd North East Zone Meeting of Directors, DSW was held on November 26, 2018 at Guwahati, Assam under the chairpersonship of Secretary, ESW. The North East Zone comprises States of Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The meeting was hosted by RSB Assam.

11.15 ***Swachhata Pakhwada:*** Swachhata Pakhwada was observed during the period December 1 to 15, 2018. All staff members took the pledge of Swachh Bharat Abhiyan on December 1, 2018. During the period, apart from SAP, a workshop was also organized to

share suggestions/innovative ideas and to review our swachhata activities and a poster/ slogan competition was also invited to involve all staff and officers in the programme. Two subject matter specialists from Ministry of Drinking Water & Sanitation participated.

Workshop on Swachh Bharat Abhiyan at Manekshaw Centre, Delhi Cantt

11.16 ***Swachhata Hi Sewa Campaign (SHS)-2018:*** "Swachhata Hi Sewa" Campaign 2018 for 15 days was organized from September 15 to October 2, 2018 by Kendriya Sainik Board with assistance of RSBs/ZSBs.

11.17 Kendriya Sainik Board (KSB) Secretariat and Rajya Sainik Board (RSB) provided administrative backup to Zila Sainik Boards (ZSB) to sensitize Ex-Servicemen (ESM) community and to organize and monitor the events in a chosen village with help of local administration with an aim to adopt one village per ZSB, all over the country and make them model village on the parameter of "Swachhata Hi Sewa" Campaign. A total 393 village was addressed in process, to be made model village on the parameter of "Swachhata Hi Sewa".

Cleanliness drive carried out by RSB Assam under "Swachhata Hi Sewa"Campaign-2018

11.18 ***International Yoga Day:*** 4th International Yoga Day was observed on June 21, 2018. A large number of officers and ex-servicemen participated in the yoga session organized at the Sainik Rest House, Naraina, Delhi for ESM/dependents. Lectures on the benefits of yoga were delivered by an expert.

4th International Day of Yoga organized at CSRH, Naraina, Delhi

11.19 ***Formation of New Zila Sainik Board Established in the states/UT:*** Government of India, Ministry of Defence has sanctioned establishment of new Zila Sainik Board Office in the following states:

(i) Mizoram - 2 Zila Sainik Board Office at Kolasib and Champhai ,

(ii) Jharkhand - 1 Zila Sainik Board Office at Medinagar,

(iii) Jammu & Kashmir - 4 Zila Sainik Board Office at Kupwara, RS Pura, Akhnoor and Reasi

(iv) Gujarat - 1 Zila Sainik Board Office at Panchmahal (Godhra)

(v) Uttar Pradesh - 3 Zila Sainik Board Office at Shamli, Hapur and Amethi.

(vi) West Bengal - 1 Zila Sainik Board Office at Cooch Behar

11.20 ***Direct Benefit Transfer Bharat Mission:*** Development of Management Information System (MIS) for integration of Direct Bharat Mission website with Kendriya Sainik Board (KSB) website has been completed. The MPR (Monthly Progress Report) of KSB beneficiaries is fetched automatically from website of KSB by DBT Bharat Mission.

11.21 ***Swachhata Ability Run:*** 3rd Edition of Swachhata Ability Run was organized in Rajasthan by Maj DP Singh with help of Kendriya Sainik Board and Rajya Sainik Board, Rajasthan at Kota, Nimbahera, Udaipur, Jodhpur, Ajmer and Jaipur.

11.22 ***Ex-servicemen Rally at National Stadium on February 25, 2019:*** Prime Minister dedicated the National War Memorial of India to the nation on February 25, 2019, to honour and to pay tribute to our soldiers who lost their lives in the line of duty.

On this occasion the Prime Minister addressed approximately 9000-10000 ex-servicemen, Veer Naris, Next of Kins (NoKs), Gallantry award winners at the Major Dhyan Chand National Stadium, New Delhi assuring them of Government's commitment to stand by them always.

Resettlement

11.23 The main thrust of the Directorate General Resettlement (DGR) is on resettlement, rehabilitation and welfare of ESM. Nearly 60,000 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 and need a second career to support their families. These personnel constitute a valuable, disciplined, well-trained, dedicated and talented pool available for nation building. Resettlement is sought to be achieved through the following:

- Upgrading their skills by imparting necessary training to prepare them to take on new assignments/jobs and assisting ESM in finding re-employment.
- Constant endeavor to provide employment opportunities in Government/ quasi Government/ public sector organizations.
- Pro-active action to facilitate re-employment of ESM in the Corporate Sector.
- Providing jobs through schemes for self-employment.
- Assistance in entrepreneurial ventures.

Training Programmes

11.24 Training Directorate of DGR is responsible for planning and conduct of Resettlement Training Courses to facilitate smooth transition of retired/retiring personnel towards second career. From August 2016, DGR is conducting resettlement courses only in the institutes of Central Government/State Government, institutes run by Regulatory Bodies/institutes aligned with Regulatory Bodies and all courses conducted by DGR are minimum National Skill Qualification Framework (NSQF) Level-5 compliant (except when a change of field is involved for the individual, where it would be Level-4).

11.25 ***Officers' Training:*** All Officers' Training Courses envisaged for 2016-17 were revised and are now being conducted at Government Institutes/Autonomous Institutes of Government. The duration of the courses is from 2 weeks to maximum of 6 months. The fee for officers' courses is shared by Government and the individual officers in the ratio of 60:40.

11.26 ***Junior Commissioned Officers (JCOs)/Other Ranks (ORs) & Equivalent Training:*** DGR conducts Diploma/Certificate Courses for JCOs/ORs and equivalent for a maximum duration upto one year. These

courses are conducted at accredited institutes only and 100% of the course fee is paid by the Government. These courses are conducted at the institutes which are located in Military Stations. To ensure proper assessment and certification, from August 2016 onwards, only those courses by Government Institutes/Universities/ Institutes run by or aligned to Regulatory Bodies/ Institutes recognized by National Skill Development Corporation of India (NSDC) with minimum NSQF Level-4 are being conducted by DGR.

11.27 The details of training imparted during the year 2018 (from January 1, 2018 to March 31, 2019) are as under:

(a)	Officers at Institutes	:	660
(b)	JCOs/ORs at Institutes	:	8721
(c)	Total	:	9381

Resettlement Training Courses under progress at Institutes

Employment Opportunities

11.28 ***Employment Opportunities in Central Government for ESM:*** Central Government has provided reservations in Government jobs for ESM towards their resettlement in civil life to the following extent:

(a) 10% of the vacancies in the posts up to the level of the Assistant Commandant in all Para-Military Forces.

(b) 10% of the vacancies in Group 'C' Direct Recruitment posts and 20% of the vacancies in Group 'D' Direct Recruitment posts in Central Government Departments.

(c) 14.5% vacancies in Group 'C' posts and 24.5% vacancies in Group 'D' posts (including 4.5% for disabled ESM/dependents of servicemen killed in action) are reserved in Central Public Sector Undertakings.

(d) 14.5% vacancies in Group 'C' posts and 24.5% vacancies in Group 'D' posts (including 4.5% for disabled ESM/dependents of servicemen killed in action) are reserved in Public Sector Banks.

(e) 100% in Defence Security Corps.

DGR is the nodal agency for compiling the data and monitoring the implementation of these reservations.

11.29 ***Registration for Employment:*** DGR is primarily responsible for assisting Defence Officers, JCOs/ORs to settle down by providing adequate employment opportunities after their retirement. Officers are registered in DGR, subject to fulfilling conditions, for further empanelment to various schemes of DGR like General Employment (Jobs in Government/PSUs/ Corporates), Security Agency Scheme, CNG Scheme, Company Owned Company Operated (COCO) Scheme, Petrol Pump Management and Coal Transportation Company etc. Statistics of personnel sponsored for permanent/contractual jobs through DGR and RSB except self-employment schemes is as under:

(a)	Through DGR	:	13788 (from January 1, 2018 to March 31, 2019)
(b)	Through RSB/ ZSB	:	16121 (as on December 31, 2018)

11.30 ***Security Agency Scheme:*** The aim of the scheme is to facilitate some kind of earning by the ESM through ESM (Officer) till he gets a job and also to keep ESM occupied and contribute positively towards society. Many Government Offices, PSUs, PSEs, Banks, Corporates and Educational Institutes etc. are seeking security cover from DGR empanelled security agencies. The number of ESM employed during the year 2018 (from January 1, 2018 to March 31, 2019) under the scheme are 38447 and a total of 687 Security Agencies have been empanelled.

Schemes for Self Employment

11.31 ***Employment opportunities through DGR:*** DGR runs schemes for officers and JCOs/ORs and their equivalents and widows for their employment and welfare as second career. The major schemes and employment generated through them are given below:

(a) ***Coal Transportation Scheme and Tipper Attachment:*** This scheme is administered based on an Memorandum of Understanding (MoU) signed between Coal India Ltd. (CIL) and DGR. Under the scheme, the ESM (Officer) forms an ESM Company consisting of 3 ESM (Officers) and registered under Companies Act. The company engages in transportation and loading of coal to provide services to all the subsidiaries of CIL. During the year 2018 (from January 1, 2018 to March 31, 2019), 100 Officers, 291 JCOs/ORs and 134 Widows/Disabled ESM/dependents have been benefited by this scheme.

(b) ***Mother Dairy Milk Booth and Fruit and Vegetable (Safal) Shop:*** Mother Dairy India Pvt. Ltd. provides ready built and fully equipped milk shops/booths to ESM (JCOs/ORs) while its fruit and vegetable shops (Safal) are open for ESM and their dependent sons in the NCR. During the year 2018 (from January 1, 2018 to March 31, 2019), 451 ESM have been benefited from Mother Dairy and Safal Scheme.

Milk Booth run by ESM

Safal Outlet Run by ESM

(c) ***Management of CNG Station by ESM (Officer) in NCR:*** Based on requirements projected by IGL, DGR has been sponsoring names of retired officers upto the rank of Brigadier/Equivalent to IGL to manage these CNG pumps in NCR. The selection process out of this panel is the sole prerogative of IGL. The scope of scheme has been extended to cover entire NCR to include Faridabad and Gurugram. During the year 2018 (from January 1, 2018 to March 31, 2019), 40 ESM (Officers) have benefited from this scheme.

CNG Station in Delhi run by ESM (Officers)

(d) ***Allotment of Army Surplus Class V 'B' 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. During the year 2018 (from January 1, 2018 to March 31, 2019), a total of 11 ESM were registered with DGR.

(e) ***Issue of DGR Eligibility Certificate for Allotment of LPG/Retail Outlet (Petrol/Diesel) against 8%Reservation Quota:*** As per the existing government policy on allotment of Oil Product Agency to ESM/widows/dependents of Armed Forces Personnel, Ministry of Petroleum & Natural Gas (MoP & NG) has a reserved quota of 8% for distributorship of LPG agency and Retail Outlets (Petrol & Diesel). The office of DGR issues required eligibility certificate to the entitled ESM/widow/dependent which is required to be submitted in original to the oil company at the time of selection. The final selection is done through draw of lots by the oil company. During the year 2018 (from January 1, 2018 to March 31, 2019), a total of 264 DGR Eligibility Certificates were issued to ESM/ widows/dependents of the Armed Forces.

(f) ***Management of Company Owned Company Operated Retail Outlets:*** As per the policy of MoP & NG, Company Owned Company Operated (COCO) Retail Outlets are made available for Management by retired defence officers & JCOs on contractual basis for a maximum period of three years. The scheme is operational Pan India. Officers are required to be sponsored by the office of DGR and JCOs through their respective RSBs. During the year 2018 (from January 1, 2018 to March 31, 2019), a total of 24 Officers were sponsored by the office of DGR against requisitions received from Oil Marketing Companies.

11.32 With effect from August 1, 2018, following changes have been made in the DGR run self-employment schemes:

(a) Entry to DGR schemes to be based upon the following priorities:

Priority-I Officers who retire after completion of their full tenure of service including SSC officers who have served their full term. This will include medically boarded out officers who are fit to undertake DGR Schemes.

Priority-II Officers who have sought Pre Mature Retirement (PMR).

Note: The sponsorship between Priority-I and Priority-II will be in the ratio of 80:20.

(b) ***Exit Policy-*** The benefits of DGR schemes will be extended to officers for a period of 5 years or 60 years of age whichever is earlier except for 'Coal Loading & Transportation Scheme', where a company must run for 5 years irrespective of the age of directors. This is so because the scheme is not viable if run for a lesser duration.

(c) ***Age of Registration for DGR-*** Maximum age for seeking any benefit from DGR to be 59 years i.e. ESM must not be more than 59 Years old at the time he applies for resettlement.

(d) ***Running of Coal Loading and Transportation Scheme -*** The scheme will be allotted for a period of 5 years. This may be extended by another 4 years in case no waiting list exists.

11.33 ***DGR Ex-Servicemen Job Fairs:*** Based on the MOU signed between DGR and the Confederation of Indian Industry (CII) in August 2014, DGR ex-servicemen Job Fairs are being organized Pan India with the support of all the three Service headquarters. These events have been a huge success and managed to achieve its desired objective in providing such a simple, direct, no cost platform for employment of ESM in the corporate sector. A total of 7DGR Ex-Servicemen Job Fairs have been organized during the period January 1, 2018 to March 31, 2019 as per details given below:

Location	Date	Participation		Job vacancies (approx)
		Corporate Employers	ESM	
Secunderabad	January 20, 2018	35	1552	1493
Kochi	March 8, 2018	32	1400	765
Chandigarh	June 26, 2018	30	1307	525
Mumbai	October 24, 2018	35	1095	1874
Chennai	November 14, 2018	49	1056	6025
Nagpur	November 29, 2018	36	567	3280
Pune	December 6, 2018	49	1037	709
Bangalore	December 28, 2018	30	1286	938
Kolkata	February 27, 2019	17	1924	3180
Goa	March 15, 2019	23	402	398

DGR ESM Job Fair at Kolkata under the aegis of HQ Bengal Sub Area

11.34 ***Publicity and Awareness Campaign:*** To ensure maximized and timely publicity of Employment Seminars, advertisements were issued in various Newspapers (Hindi, Regional languages and English) as well as the Employment News for the Seminars held at Hyderabad, Kochi, Chandigarh, Mumbai, Chennai, Nagpur and Pune. In addition, advertisement was placed on PAN India basis in various newspapers for ESM employability. The purpose was to showcase the potentialities of the ESM before the Corporate World and the environment in general. Additionally, issue of Sainik Punarvas Patrika (Bi-lingual Magazine), containing valuable information for the retiring and the retired soldiers is under publication, covering details of a host of activities undertaken by DGR towards the effective resettlement of ESM. Information Brochures and Leaflets containing details of schemes towards ESM resettlement were also got printed and the printed publicity material was distributed for maximum publicity and information. Besides this, effective publicity of DGR activities towards the resettlement of ESM was done through 'Twitter' and official websites of the Services.

DGR Publicity Stall on Veterans Day 2018(January 14, 2018) at Manekshaw Centre, Delhi Cantt

Health Care

11.35 Ex-Servicemen Contributory Health Scheme (ECHS) was launched with effect from April 1, 2003. The Scheme was further expanded in October 2010. ECHS aims to provide quality healthcare to ESM and their dependents through a network of ECHS Polyclinics, Service medical facilities and civil empanelled/ Government hospitals spread across the country. The scheme has been structured on the lines of Central Government Health Scheme (CGHS) and is financed by the Government of India. Endeavour is to ensure cashless treatment as far as possible by utilising the empanelled hospitals for the veterans and their dependents.

11.36 Policy framework for the Scheme is laid down by the Department of Ex-Servicemen Welfare (DESW). Executive control of the same is also exercised by the DESW. The Scheme at the Polyclinic level is managed through personnel recruited on contract basis while at the Regional Centre and Central Organisation headquarter levels the existing infrastructure of the Armed Forces is utilized so as to minimize the administrative expenditure.

11.37 ECHS Polyclinics are designed to provide 'Out Patient Care' that includes consultations, essential investigation and provision of medicines. Specialized consultations, investigations and 'In Patient Care' (Hospitalisation) is provided through spare capacity available in Service hospitals, all Government hospitals and also through civil medical facilities empanelled with ECHS.

ECHS Network

11.38 ***Central Organisation:*** At the apex level is the Central Organisation, ECHS located in Delhi. It is an attached office under the DESW and is headed by a serving Major General.

11.39 ***Regional Centres:*** There are a total of 30 Regional Centres spread across the country. The Regional Centres function under the Central Organization, ECHS. These Regional Centres oversee operationalisation and functioning of ECHS Polyclinics placed under them, empanelment of civil hospitals with ECHS and also Online Billing.

11.40 ***Polyclinics:*** A total of 433 ECHS Polyclinics including six Polyclinics in Nepal have been sanctioned

by the Government out of 427 ECHS Polyclinics in India, 427 have been operationalised as on date. These Polyclinics are fully manned by hired trained professionals with certain vacancies reserved for ESM. The Station Headquarters are responsible for ensuring smooth functioning of the Polyclinics as also for timely acquisition of land and construction of ECHS Polyclinic buildings.

Present Status

11.41 ***ECHS Membership:*** The total beneficiaries of the Scheme are approximately more than 52 lakh.

11.42 ***Polyclinics and Civil Empanelled Medical Facilities:*** A total of 231 additional medical facilities have been enlisted with ECHS in last one year (since January 2018). Now the Scheme has more than 2000 civil hospitals empanelled with it, for providing cashless treatment to ECHS beneficiaries. The reach now has been extended to Kashmir Valley as well. In case of emergency, members are permitted to avail medical treatment at non-empanelled hospital on payment. Their medical treatment bills are reimbursed at approved (CGHS) rates.

11.43 ***Budget:*** The budget allotted to ECHS for FY 2018-19 is through the Ministry of Defence (Miscellaneous). Budget allotment to ECHS has grown over a period of time. The allotment for FY 2018-19 till date has been ₹ 3233.76 crore.

Achievements during the last one year

11.44 ***Fixed Medical Allowance (FMA):*** Department of Ex-Servicemen Welfare has approved Fixed Medical Allowance (FMA) on November 1, 2018 for all those beneficiaries hailing from districts where there are no ECHS Polyclinics / Service Hospitals / Upgraded MI Rooms. ECHS Polyclinics and Service Hospitals cover 353 Districts out of 718 Districts in the country with a chain of 427 Polyclinics. In addition to one time contribution, forfeiture of FMA is a mandatory requirement to avail ECHS benefits. 365 Districts in the country neither have an ECHS Polyclinic nor a service hospital resulting in ECHS beneficiaries of these Districts being practically unable to avail ECHS benefits despite forfeiting FMA @ ₹ 1,000/- per month. This FMA entitlement will be in lieu of OPD treatment. ECHS beneficiaries will continue to be eligible for IPD treatment despite opting for FMA. The financial benefit will reach lakh of ECHS beneficiaries ushering a new era of health care.

11.45 ***ECHS Gets a New Polyclinic at Indore:*** Department of Ex-Servicemen Welfare has approved a new Type 'D' Polyclinic at Indore on September 28, 2018. The same was inaugurated on March 1, 2019 by Speaker of Lok Sabha and is operational ever since. Indore is the largest town of the state of Madhya Pradesh. There are approximately 6000 ESM needing medical health care through ECHS in this growing town. This has taken the number of sanctioned Polyclinics to 427. The Polyclinic will have provisions of consultation & treatment by Medical Officer and Dental Officer besides provision of Lab tests. All ESM beneficiaries will get to utilize the empanelled facilities in a more user friendly manner.

11.46 ***Adoption of Persons with Disability (PWD) Act – 2016:*** Department of Ex-Servicemen Welfare has accorded approval for adoption of PWD Act – 2016 in place of PWD Act – 1995 on September 18, 2018. Provisions of PWD Act 1995 applicable to ECHS so far provided life time treatment to unmarried sons suffering from seven disabilities viz Blindness, Low Vision, Leprosy Cured, Hearing Impairment, Locomotor Disability, Mental Retardation & Mental Illness. Under the revised provisions, unmarried sons suffering from Blindness, Low Vision, Leprosy Cured Persons, Hearing Impairment (Deaf and Hard of Hearing), Locomotor Disability, Dwarfism, Intellectual Disability, Mental Illness, Autism Spectrum Disorder, Cerebral Palsy, Muscular Dystrophy, Chronic Neurological Conditions, Specific Learning Disabilities, Multiple Sclerosis, Speech and Language Disability, Thalassemia, Hemophilia,

Sickle Cell Disease, Multiple Disabilities including Deaf, Blindness, Acid Attach Victim & Parkinson's Disease (Covering 21 Disabilities / Ailments) will be provided life time treatment.

11.47 ***Travelling Allowance by ECHS Patients:*** Department of Ex-Servicemen Welfare has accorded approval on August 7, 2018 for claiming travelling allowance by ECHS patients when they have to move out for treatment in empanelled hospital when such facility is not available in concerned station. They can travel by any means of transport though their claim will be limited to their entitlement. ECHS patients are permitted to claim travel allowance as entitled for the rank at the time of retirement for rail journeys / travel by Government Transport. Air Travel has been authorized in Medical Emergencies on certification of Medical Officer and OIC Polyclinic. Patients were facing difficulty in claiming their travel entitlement when travelling in own transport / using private transport. In a significant move to assist all ECHS patients, MoD (DoESW) allows travelling allowance by all modes of transport including sea & river streamer while limiting the same to entitled class of travel when treatment is not available in the concerned station. The approval will meet the aspirations of large number of veterans for their legitimate claims.

11.48 ***Exemption of ECHS Contribution under Section 80 D of IT Act 1961:*** In the exercise of the powers conferred by Clause (a) of Sub Section (2) of Section 80D of the Income Tax Act, 1961 (43 of 1961), the Government has notified the Ex-Servicemen Contributory Health Scheme of the Department of Ex-Servicemen Welfare, Ministry of Defence, for the purposes of the said clause for the assessment year 2019-20 and subsequent assessment years.

11.49 ***New ECHS Smart Card:*** New Smart Card has been launched on January 14, 2018 on Veteran's Day by Raksha Rajya Mantri. First New Smart Card was handed over on July 12, 2018 at Central Organisation ECHS. As of now more than 48% beneficiaries have already applied online for new ECHS Smart Card. Till now 6,50,000 Smart cards have been prepared and dispatched to concerned Station Headquarters.

11.50 ***SMS Based Intimation of Re-Imbursement Claims for Faster Settlement:*** Department of Ex-Servicemen Welfare has sanctioned a system for intimating the beneficiary regarding progress of their re-imbursement claims at various stages through SMS. This new system will not only keep the beneficiary updated about progress of their claims but will also apprise them of observation, if any, on their claims and will also guide them about the action required to be taken for speedy clearance of claims. This facility will go a long way in improving transparency, accountability and shall enhance ESM satisfaction level by faster settlement of individual re-imbursement claims.

11.51 ***Free Eye Referral:*** Interaction held with eye clinics in Delhi-NCR on June 6, 2018. 12 Eye clinics have agreed to offer free consultation and no referrals are required. This will reduce the congestion at PCs substantially besides reducing the difficulty of ECHS patients. Five eye clinics have agreed in Lucknow. Option has been given to all eye clinics in the country.

11.52 ***Pilot Project for increased Working Hours in ECHS Polyclinics:*** All ECHS PCs have been functioning for eight hours from 0800hr to 1600hr or as per laid down timing based on weather, season and geographic conditions. There are some Polyclinics witnessing increased footfalls besides certain veterans requesting medical attention after work hours specially in the evenings. In an attempt to enhance user satisfaction, pilot project has been launched for enhanced working hours in two Polyclinics in Delhi-NCR. Polyclinics at Base Hospital Delhi Cantt and Noida are functioning w.e.f. 0800hour to 2000 hour everyday except Sundays and holidays w.e.f. August 1, 2018.

11.53 ***Delegation of Powers to MD ECHS for Employment of Persons:*** Department of Ex-Servicemen

Welfare accorded approval for delegation of powers to MD ECHS for employment of persons of following trades based on functional requirements to run ECHS establishments in lieu of vacancies with equivalent emoluments on April 23, 2018:

(i) IT Technician.

(ii) Data Entry Operator.

(iii) Receptionist.

(iv) Clerks.

(v) Storekeeper.

With this delegation, it has become feasible to assist Polyclinics and formations more as far as provision of manpower is concerned.

11.54 ***Re-location of two ECHS Polyclinics now at Tenga and Tawang in Arunachal Pradesh:*** Department of Ex-Servicemen Welfare has approved on May 7, 2018re-location of two ECHS Polyclinics at Tenga and Tawang in Arunachal Pradesh. Both these Polyclinics were inaugurated on October 16, 2018 by RRM and are operational ever since. These two Polyclinics will meet the aspirations of veterans & their dependents in these areas of Arunachal Pradesh.

11.55 ***Referral to empanelled Hospitals.*** Department of Ex-Servicemen Welfare has issued instructions on August 2, 2018 that name of hospital not to be entered in referral and patient is free to go to any hospital.

11.56 ***Ayurvedic, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH):*** Only allopathic system of treatment was allowed in ECHS so far. There were rising aspirations on part of ECHS beneficiaries to get 'AYUSH' treatment. Department of Ex-Servicemen Welfare has now authorized 'AYUSH' treatment for all ECHS beneficiaries. In the current approved authorization, treatment in Government AYUSH hospital is permitted on reimbursement basis at full rates including medicines prescribed. Permission can be taken from OIC Polyclinic/ Director Regional Centre/ CO ECHS as decided by the patient. Only one system of treatment is allowed at any point of time.

11.57 ***Setting up of two additional Regional Centres at Yol Shimla (HP) and Bhubaneswar (Odisha):*** DoESW has approved two additional Regional Centers at Yol Shimla (HP) for Himachal Pradesh and other at Bhubaneswar for Odisha vide Government of India, Ministry of Defence letter dated January 8, 2019. All ESM beneficiaries will get to utilize the empanelled facilities in a more user friendly manner.

11.58 ***Full payment in non-empanelled hospital in emergency cases:*** DoESW has sanctioned full reimbursement in emergency cases in non empanelled Hospitals under specific conditions as per Government of India, Ministry of Defence ID dated January 15, 2019.

11.59 ***Enhanced Pay of Specialists (Medical Specialists, Gynecologist and Radiologist) in ECHS:*** DoESW has enhanced Pay of Specialists in ECHS to ₹ one lakh per month vide letter dated January 24, 2019.

11.60 ***Reimbursement of Not Available medicines:*** To facilitate availability of medicines to ECHS Beneficiary reimbursement of Not Available medicines has been approved by DoESW on January 30, 2019.

11.61 ***ECHS Facilities to Assam Rifles:*** ECHS facilities to Assam Rifles pensioners and their dependents residing in India and Nepal has been sanctioned vide Ministry of Defence, Department of Ex-Servicemen Welfare letter dated February 5. 2019.

11.62 ***ECHS facilities extended to World War-II Veterans, ECOs, SSCOs and pre mature retirees:*** DoESW has extended ECHS facilities to World War II Veterans, ECOs, SSCOs and pre-mature retirees vide ID dated March 7, 2019.

11.63 ***ECHS Toll-Free Helpline:*** ECHS Toll free helpline 1800-114-115 has been made available for all ECHS members for resolving queries on Membership, Treatment and Employment. The service is available from Monday to Friday on all working days from 0900-1700 hours. All information regarding ECHS, including list of empanelled facilities, forms for membership and latest policies etc. are available on www.echs.gov.in.

Pension Reforms

11.64 ***Inclusion of Line of Actual Control (LAC) for the purpose of Liberalised Family pension:*** Vide Government order dated March 7, 2018, following amendments have been carried out under Category-D of Para 1 clause (iii) of Ministry's letter dated February 3, 2011:

"Accidental death/injury sustained due to natural calamities such as flood, avalanches, landslides, cyclone, fire and lightening or drowning in river while performing operational duties/movement in action against enemy forces and armed hostilities in operational area to include deployment on International Border or Line of Control or Line of Actual Control."

11.65 ***Enhancement of ex-gratia ad-hoc allowance:*** Vide Government order dated April 9, 2018, it has been decided to sanction enhancement, on compassionate grounds, ex-gratia ad-hoc allowance to the following category of pensioners/family pensioners from ₹ 3500/- per month to ₹ 9000/- per month with effect from January 1, 2016.

(a) Armed Forces pensioners/family pensioner migrated from Pakistan.

(b) Burma Army pensioners/family pensioner who are Indian Nationals and drawing their pension in India.

(c) Burma Army pensioners of Nepalese origin who are drawing pension in Indian and Indian Embassy, Pension Paying Offices in Nepal.

11.66 ***Revision of Non-Practicing Allowance (NPA):*** Vide Government Order dated May 24, 2018, it has been decided that all kind of pension/family pension in respect of Medical Officers of Armed Forces who retired/died during January 1, 2016 to June 30, 2017 and were drawing NPA at old rates on the date of retirement/death, shall be further revised w.e.f. July 1, 2017 by adding NPA @ 20% to the basic pay on the date of retirement.

11.67 ***Sanction of Liberalized Family Pension in cases of Central Ammunition Depot, Pulgaon:*** Vide Government Order dated May 31, 2018, it has been decided that as an exception, Military Personnel who died/disabled/injured in the ammunition accidents at Central Ammunition Depot(CAD), Pulgaon on May 31, 2016, shall be eligible for Battle Casualties status for compensation/pension/gratuity as is admissible in terms of Ministry of Defence letter dated January 31, 2001.

11.68 ***Orders for delinking of qualifying service in the cases of PSU absorbee:*** Vide Government Order dated June 20, 2018, it has been decided that while determining the revised pension of those Defence pensioners who had drawn lump sum payment on absorption in Public Sector Undertaking/Autonomous Bodies after expiry of commutation period of 15 years from the date of payment of 100% lump sum amount, with effect from January 1, 2006, the pension /family pension shall also be revised in accordance with the provisions contained in the Ministry of Defence letter dated September 30, 2016.

11.69 ***Concordance Tables for notional pay fixation:*** Based on the past instructions on fixation of pay in various pay commissions, concordance tables for fixation of notional pay for Armed Forces personnel who retired/died in various ranks during the 4th, 5th and 6th Pay Commission periods (including 3rd Pay Commission for Sailors only) have been issued vide Government Order dated October 17, 2018 to facilitate fixation of notional pay or pre-2016 pensioners/family pensioners.

11.70 ***Minimum ceiling for certain category of casualty pensionary awards:*** Government Order dated January 29, 2019 regarding implementation of Government decision on the recommendations of the 7th Central Pay Commission (CPC) on provisions regulating Casualty Pensionary Awards for Defence Forces pensioners/ family pensioners was issued wherein it has been decided that following minimum ceiling shall be applied to the under mentioned casualty pensionary awards:

(a) The Disability/Liberalized Disability/War Injury pension (i.e. total of service element plus disability/liberalized disability/ war injury element as the case may be), shall be subject to minimum of ₹ 18,000/- per month irrespective of degree of disability of the personnel.

(b) In cases of disability pension where permanent disability is not less than 60%, the disability pension (i.e. total of service element plus disability element) shall not be less than 60% of the reckonable emoluments as defined in above mentioned orders, subject to a minimum of ₹ 18,000/- per month.

(c) The amount of special family pension, admissible to the families of Armed Forces personnel, shall be subject to a minimum of ₹ 18,000/- per month.

(d) The amount of liberalized family pension, admissible to the child/children of Armed Forces personnel, shall be subject to a minimum of ₹ 18,000/- per month.

The provisions of this letter shall take effect from January 1, 2016.

11.71 ***Pension revision in respect of Hony Lt. & Hony Capt.:*** Vide MoD Order dated January 17, 2013, it was decided that the notional pay in the revised pay structure for post-January 1, 2006 Hony Lt./Capt shall be worked out by adding pay in the revised Pay Band corresponding to the fixed pay of 5th CPC plus the Grade Pay and Military Service Pay introduced under 6th CPC revised pay structure w.e.f. September 24, 2012. Vide Government letter dated February 6, 2019, it has been decided that the aforesaid provisions of Government letter dated January 17, 2013 has now been made applicable to the post-2006 Hony Lt./Capt, w.e.f. January 1, 2006 or date of discharge/invalidment whichever is later instead of September 24, 2012.

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CHAPTER **12**

COOPERATION BETWEEN ARMED FORCES AND CIVIL AUTHORITIES

12 COOPERATION BETWEEN ARMED FORCES AND CIVIL AUTHORITIES

12.1 Apart from the main responsibility of defending the borders of the country, the Armed Forces render timely assistance to civil authorities for the maintenance of law and order and/ or essential services as also in rescue and relief operations during natural calamities. The details of assistance provided by the Armed Forces during the period are given in the succeeding paragraphs.

INDIAN ARMY

12.2 ***Operation Sadbhavna and Samaritan:*** Army has undertaken a large number of Military civic action programmes sponsored and funded by the Government of India aimed at "Winning Hearts and Minds" of the people in areas affected by terrorism and insurgency in Jammu & Kashmir and North Eastern States under Operation SADBHAVANA and Operation SAMARITAN.

12.3 The focus of Operation Sadbhavana in these regions has been towards development of core social indices of Quality Education, Women Empowerment, Community and Infrastructural Development, Health and Veterinary Care, Development of Gujjar/Bakarwals and Nation Building. In addition, basic needs like Water Supply Schemes, Electrification and Animal Husbandry have also been given due importance. A brief of the initiatives undertaken by Army are:

(a) ***Army Goodwill Schools:*** Army is currently running 45 Goodwill Schools with over 14000 students and over 17000 alumni community. The initiative also generates employment for 751 teachers and 256 non-teaching staff. 1388 students have also been sponsored for higher education programmes.

(b) ***Sports Events:*** During the previous year, over 3000 village, tehsils and district level event attracting over 45,000 locals have also been organized. Several youth from the State have represented and won laurels at various national and international sporting events in the year gone by.

(c) ***Cultural Exchanges:*** To promote cross cultural exchange of youth and Nation building, some projects were also undertaken by conducting National Integration Tours (NIT) comprising students and elders to other parts of the country. Approximately 45-50 NITs, each comprising 25-30 participants, are conducted every year. Till now, 15000 participants from both J&K and North Eastern States have had an opportunity to visit various parts of the country and meet eminent personalities.

(d) ***Border Area Development:*** A number of developmental works of smaller/ minor scope have been started under the aegis of Panchayati Raj Institutions and other Central/ State Government Statutory bodies. These works were regulated by MoD Guidelines on 'Security Considerations for Construction Activities/ other activities in Border Area'. The Guidelines were relaxed with an addendum issued on November 27, 2018. This now

permits developmental works of small nature like construction, repair and maintenance of internal village roads/ streets, village ponds, government buildings like schools, Hospitals, Electrifications etc. to facilitate faster development in border areas.

12.4 During the year, Indian Army was requisitioned 24 times in which 82 Army Columns including 21 Engineer Task Forces (ETF) and 14 Medical Teams were deployed in Aid to Civil Authorities. Details of assistance provided in few of the important instances are given in succeeding paragraphs.

Flood Relief Operations

12.5 ***Kerala:*** Kerala State witnessed very heavy rainfall with effect from August 9, 2018 due to which gates of major dams had to be opened in 14 out of 15 districts. The state was very badly affected by floods. The details of assistance provided are as under:

(a) ***Flood Relief Columns:*** 10 Flood Relief Columns & One Special Force Team carried out rescue operations, construction of bridges, restoration of connectivity and provision of medical aid in affected districts of Kerala from August 9 to 24, 2018.

(b) ***Engineer Task Force:*** Eight Engineer Task Forces & Four BAUT Teams were deployed and worked round the clock in the rescue & relief operation.

(c) ***Medical Assistance:*** Medical assistance was also provided by 12 Quick Reaction Medical Teams and one Advance Dressing Station.

(d) Details of activities are as under:

Ser No	Assistance Provided	Summary (Numbers)
(i)	Rescue of Civilians	13452
(ii)	Restoration of connectivity	49 locations
(iii)	Construction of Temp Bridges	18
(iv)	Provision of Relief Material	14 Tons
(v)	Medical Aid	7803
(vi)	MsRE	1200 Packets
(vii)	Life Jackets	300

Rescue & Relief Operations in Kerala Floods

12.6 ***Manipur (Thoubal & Imphal East Districts):*** Six Army/ Assam Rifle Columns including one ETF were deployed for flood relief operations at various places in Thoubal & Imphal East districts on June 15, 2018. 300 Civilians were evacuated.

12.7 ***Tripura (Unakoti District):*** Five Army/ Assam Rifle columns were deployed on June 13, 2018 for flood relief operations at Fatikroi and Kailashahar. 800 Civilians were rescued and 1700 civilians were provided food and water.

12.8 ***Karnataka:*** One Army Column, One Engineer Task Force and One Quick Reaction Medical Team were deployed in districts of Karnataka for Rescue and Relief operations on August 20, 2018. Following assistance were provided:

(a)	Civilians rescued/ evacuated	-	504
(b)	Bridge / Crossing Construction	-	02
(c)	Dead bodies recovered	-	02
(d)	Medical Aid provided	-	49

Rescue & Relief Operations

12.9 ***Himachal Pradesh:*** Rescue and relief operation was undertaken by Indian Army in Himachal Pradesh with effect from September 25 to 30, 2018. Indian Army was actively involved in assisting the Government of Himachal Pradesh at all affected locations Army detachments operating from Rumtse, Pang, Sarchu, Patsio & Tandi undertook rescue & relief operations in which 125 civilians including 31 Bhutanese, 38 Napalese & Indian tourists were evacuated from Bhartapur to Sarchu. 22 civilians including two Australian Nationals were rescued and brought to Sarchu from near by areas. A vehicle foot patrol launched from Patsio to Suraj Tal evacuated 95 civilians. High alitude warm clothing, shelters, hot meals, medical aid and satellite communication facility were provided to needy civilians.

12.10 ***Uttar Pradesh:*** 11 bogies of a goods train derailed near Baghaoli station in Hardoi district of Uttar Pradesh. The derailment took place on December 22, 2018. Lucknow-Delhi rail route via Moradabad was temporarily blocked. Assistance was provided in terms of two columns with heavy recovery, material handling crane and dozer for clearing of railway track. Derailed bogies were cleared off the railway track and Railway traffic was restored on both the tracks by December 25, 2018.

12.11 ***Sikkim:*** Approximate 400 tourist vehicles and total 2946 civilians were stranded at various locations i.e Mile 17, Mile 13 due to heavy snowfall and closure of road on December 28, 2018. 2656 civilians stranded between Changgu Lake and 17 Mile were rescued. Medical relief was provided to 490 civilians. 290 civilian who were stranded between 17 Mile and 13 Mile were also rescued.

Assistance during Festivals

12.12 ***Construction of Temporary Foot Bridge at Mysore, Karnataka:*** A Temporary foot bridge at Thrivenisangam in Mysore district was constructed to facilitate move of devotees (approximate 10 lakh) on the occasion of 11th Kumbh Mela Mahotsav which was held from February 17 to 19, 2019.

12.13 ***Kumbh Mela 2019:*** Kumbh Mela - 2019 was conducted at Prayagraj, in Uttar Pradesh from January 15 to March 4, 2019. On the request of the State Government for smooth conduct of Kumbh Mela 2019, two TA companies, Diving detachment and Special Forces Team, one Bomb Disposal team, Engineer resources (Establishment of Baut Assault Universal Type (BAUT) camp and provision of BAUTs/ OBMs, construction of two helipads, maintenance of Pontoon Bridge Sets) and medical cover (Advance Dressing Stations in addition to two Quick Reaction Medical Teams with Ambulances) were provided.

INDIAN NAVY

12.14 The Indian Navy (IN) continues to provide assistance to civil authorities for various rescue and relief operations during natural calamities. These include assistance to the local populace during floods, evacuation operations from overseas, diving assistance at various places, Search and Rescue, etc. The details of assistance provided by Indian Navy during the year are enumerated in the succeeding paragraphs.

12.15 ***Training and Support for State Coastal Security Forces:*** Indian Navy has been actively involved in the marine orientation training of Central Industrial Security Force (CISF) and Border Security Force (BSF) personnel. This training is conducted at INS Chilka, which is the premier training establishment for newly joined sailors of the Indian Navy. The training is conducted for approximately 240 CISF personnel in batches of 60 every year. CISF deploys these personnel for protection of ports and installations near the coast. In addition, a Marine Orientation capsule for the BSF personnel and comprehensive 35 week training for 60 personnel of Marine Task Force (Gujarat) is also conducted by the Indian Navy.

12.16 ***Training of Coastal Police Personnel:*** In pursuance of the need for maritime training of Coastal Police personnel, the first batch of personnel was trained in January 2018. Another batch was trained from July 23 - August 21, 2018.. The latest batch of training was undertaken from October 22 – November 20, 2018.

Conduct of Training for Coastal Police of Kerala

12.17 ***Hyperbaric Oxygen Treatment:*** At Andaman and Nicobar Command, the Command Diving Unit (CDU) has been at the forefront of providing Hyperbaric Oxygen Treatment (HBOT) and other diving related ailments. CDU has successfully rendered HBOT to Foreign as well as Indian nationals. The benign effort by the divers has resulted in saving the life of civilians. These efforts have also ensured that the A&N Islands are viewed as a safe diving destination by the global community of recreational divers.

12.18 ***Annual Joint Humanitarian Assistance & Disaster Relief (HADR) Exercise:*** Based on the directives of Prime Minister during the CCC–2016, a multi-agency HADR exercise was conducted by IN at Kochi from April 5-8, 2018 and included an exhibition that was inaugurated by the Chief Minister of Kerala. The HADR exercise was an ideal opportunity to provide the local populace an insight into the role and functions of relief agencies and various technological advancements achieved in the field. The large scale national event projected the dynamic capabilities and swift mobilization of the Armed Forces, NDRF, Fire and Rescue Services and other relief agencies over a period of four days. The exercise was also witnessed by two observers each from Bangladesh, Maldives, Mauritius, Myanmar, Seychelles and Sri Lanka.

Inauguration of Exhibition by Chief Minister of Kerala

HADR Exercise

12.19 ***Op 'Madad':*** Op 'Madad' was conducted from August9-24, 2018 to provide SAR and relief assistance in the flood affected areas of Kerala. A total of 16843 civilians were evacuated by IN helicopters and diving teams. IN operated a total of three Relief Camps during Op Madad at Naval Base (Kochi), at CUSAT in South Kalamassery and at Aluva; 330 tons of relief materiel was provided. On receipt of a request to operate civil aircraft from Garuda, the airfield was made available for civil flights within 24 hrs after certification from DGCA. IN also contributed 8.92 crore towards Kerala CM Relief Fund. During OP Madad, a pregnant lady due for delivery was rescued by Air evacuation from top of a Madrasa in Kondotty area; delivery was conducted at INHS Sanjivani.

Operation Madad

12.20 ***Flood Relief at Kodagu:*** During the severe flood at Kodagu in South Karnataka in August 2018, an emergency response team from Karnataka Naval Area was deployed for disaster relief operations, based on request from State administration. 67 personnel, including two pregnant ladies were rescued from isolated locations, who were stranded due to floods and landslides.

12.21 ***Rescue Operations for Stranded Miners in Meghalaya:*** In an unfortunate incident which occurred in the state of Meghalaya on December 13, 2018, 15 miners/ labourers were trapped in a coal mine. The Indian Navy deployed a team of divers along with sophisticated equipment including underwater ROVs for Search and Rescue of these trapped miners w.e.f. December 28, 2018 till early March 2019. Despite unfavourable diving conditions, lack of information and blueprint of mines (rat holes underneath), poor underwater visibility, high turbidity of water, inaccessibility of rat holes, the Naval team actively engaged in conducting Search & Rescue (SAR) operations. The team recovered one dead body, located second body and identified probable locations of other bodies of the miners underwater.

Rescue efforts at Meghalaya

12.22 ***Cyclone 'Titli':*** Based on assistance sought by the State Governments of Andhra Pradesh and Odisha, IN provided HADR and SAR assistance including air dropping of 3000 food packets and 5500 kgs of relief material at various locations, in coordination with the State administration.

Cyclone 'Titli'

12.23 ***Cyclone 'Gaja':*** Cyclone 'Gaja' hit Tamil Nadu coast, near Nagapattinam, on November 18, 2018. Four ships, with relief material embarked, were sailed out immediately from Chennai. The relief material was distributed at Nagapattinam, Karaikal and Rameshwaram. Helicopter and Dornier aircraft sorties, were flown to ascertain the damage in the area and to coordinate relief efforts.

Cyclone 'Gaja'

12.24 ***Cyclone Phethai:*** In the aftermath of Cyclone Phethai on December 17, 2018, Indian Navy was called for assistance. IN Ship Shakti was sailed out

with HADR stores and an embarked helicopter to Kakinada. Additional diving teams and medical teams were dispatched to Kakinada for necessary assistance. Assistance was also provided to search and locate three fishing boats. Oil Rig Olinda Star was reported damaged and had dangerously tilted due to cyclone 'Phethai' on December 21, 2018. IN helicopter was pressed into service immediately. The aircraft carried out personnel transfer on Olinda Star. On completion of the required work to render the oil rig safe, the team was de-inducted from the oil rig safely.

Cyclone 'Phethai'

12.25 ***Mission 'Nistar':*** The Andaman & Nicobar Command was requested by civil administration for evacuation of tourists from Swaraj Dweep and Shaheed Dweep. The evacuation was warranted due to suspension of civil ferries due to extreme rough weather in the region. IN ships Bitra and Battimalv were deployed at very short notice and evacuation of 386 tourists from Shaheed Dweep was undertaken.

Mission 'Nistar'

INDIAN COAST GUARD

Aid to civil authorities

12.26 ***Safe Evacuation of Stranded Passengers from Diglipur:*** On June 13, 2018, Coast Guard ferried 77 stranded residents including 3 female and 5 children were ferried to Smith Island and Gandhinagar.

12.27 ***Assistance to civil authority - Kerala Flood:*** In response to the Kerala Floods in August 2018, Indian Coast Guard (ICG) launched a large scale Disaster Response & Relief Operation code named 'Op Rahat' with Thirty six Disaster Response Teams (DRTs). ICG mobilised 8 ships, 4 Dorniers and 3 Helicopters during the Operation. A total number of 3548 persons were evacuated/ airlifted and more than 180.6 tonnes of relief material was brought from New Mangalore and Mumbai and distributed/ air dropped in the affected areas of Kerala. The ICG relief operation also included setting up of Community kitchen and Medical Camps.

12.28 ***ICG efforts towards cyclone 'Gaja':*** Consequent to formation of low pressure in North Andaman sea in November 2018, Indian Coast Guard initiated series of pre-emptive measures from November 9, 2018 onwards to ensure safety of fishermen operating at sea wherein 18 ships were deployed off coastal areas of Tamil Nadu, Andhra Pradesh, Pudducherry, Maharashtra, Goa, Karnataka, Kerala and Lakshadweep & Minicoy. Transmission of warnings by International Safety Net (ISN) and NAVTEX were commenced since November 9-10, 2018 for the Bay of Bengal and Arabian sea which resulted in safe returns of 946 fishing boats. ICG ships also mobilized relief materials in coordination with State/UT Administration and around 40 Tonnes of fresh water was distributed through tankers by Coast Guard Station Karaikal. Special Community Interaction programmes were also conducted at 11 places.

12.29 ***Safe Evacuation of Stranded Passengers from Neil and Havelock Islands at Andaman & Nicobar (A&N) Islands:*** On December 15, 2018, Coast Guard Regional HQs (A&N) received a request from A&N Administration seeking assistance for evacuation of stranded passengers from Neil and Havelock Islands due to ceasing of ferry service due to inclement weather. On receipt of message, 5 Coast Guard Ships were deployed and a total of 707 passengers were evacuated from both islands.

Evacuation of the stranded

INDIAN AIR FORCE

12.30 ***Airlift of mortal remains:*** A C-17 aircraft was tasked to airlift 38 mortal remains from Baghdad, Iraq to Amritsar India from April 1-2, 2018. Aircraft flew 3 sorties and 14 hrs. Minister of State for External Affairs accompanied the mortal remains from Baghdad.

12.31 ***Fire Fighting Operations:*** Fire fighting operations using Bambi Buckets were carried out at Kodaikanal on March 11-12, 2018, at Katra, Pathankot, Kasuali and Malviya Nagar, New Delhi from May 23-28, 2018. Helicopters flew a total of 57:30 hours in 71 sorties and dumping 102 KL of water. Malviya Nagar fire fighting operation was the first such operation carried out to combat urban fire.

12.32 ***Flood relief ops:*** Flood relief operations were carried out in Tripura from June 14-19, 2018, in Nagaland from August 3-20, 2018, in Karnataka from August 16-22, 2018 and in Madhya Pradesh and Uttar Pradesh between July to September 2018. Various transport aircraft and helicopters participated in the relief operations. A total of 138 sorties were flown airlifting 280 passengers and 75 Tonnes of relief material.

12.33 ***Aerial Fire Fighting - Indian Merchant Vessel:*** On June 17, 2018, MLH was utilised for Fire Fighting and subsequent recovery effort of a Merchant Vessel off the coast in Sunderban area. The ship was destroyed by fire accident. A total of 14 sorties were flown releasing 15,000 litres of water towards the Fire Fighting and recovery effort.

12.34 ***Airlift of Para Military Forces:*** Transport aircraft of IAF provided airlift to Centre Reserve Police Force (CRPF) and Border Security Force (BSF) personnel at various occasions to control the law and order situation. Total of 24 sorties have been flown and 2297 personnel alongwith approximately 81 tonnes of load has been airlifted to Srinagar (J&K), Assam and Chennai, Tamil Nadu to tackle law & order situation.

12.35 ***Flash Floods Maharashtra:*** On July 7, 2018, helicopters undertook rescue of five stranded civilians near Chinchoti waterfall in Palghar, Maharashtra.

12.36 ***Relief Operations towards landslides:*** Helicopter effort was provided for airlifting of food and other essential supplies and rescue of stranded civilians, after the region was cut off due to heavy rains and lack of road connectivity due to landslides, at following locations:

(a) At Pithoragarh, Uttarakhand from July 6 to September 9, 2018 wherein 32 sorties were flown and total of 28.45 tonnes of relief material was airlifted.

(b) In Sikkim from September 15-17, 2018 wherein 43 sorties were flown and 423 civilians were airlifted.

(c) In Himachal Pradesh from September 23-29, 2018. Total 141 sorties were carried out and 363 civilians were rescued.

12.37 ***Flood relief in Kerala:*** IAF launched rescue and relief operations after the devastating floods in August 2018. A total of 47 aircraft (05xC-17, 03xIL-76, 05xC-130 and 10xAn-32 and 24 heptrs) were pressed into the rescue and relief operations in Kerala. Towards this, IAF aircraft airlifted 4209 passengers and 1554 tonnes of load and flew 1121 sorties and 1404 hrs.

12.38 ***Kailash Mansarovar Yatra:*** Helicopters effort was organised towards Kailash Mansarovar Yatra from June 18 to September 26, 2018. Total 193 sorties was flown and 1876 pilgrims were airlifted.

12.29 ***Op Samudra Maitri:*** Indonesia was struck with an earthquake of magnitude of 7.5 on Richter scale on September 28, 2018. The most severely affected area was Palu which saw over 1230 deaths and about two lakh people were rendered homeless. The airfield at Palu was also partially damaged with only approx 5500 ft of runway available for operation. IAF was tasked to airlift approx 40 Tonnes of relief material and one field hospital to Indonesia. On October 3, 2018, one C-17 airlifted approximately 38 Tonnes of relief material including tents, gensets and medicines to Makassar, Indonesia. One C-130J airlifted field hospital of Indian Army along with medical team on October 3, 2018 to Balikpapan, Indonesia. The field hospital and medical team was de-inducted from Indonesia on October 20, 2018 in C-130J.

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CHAPTER **13**

NATIONAL CADET CORPS

13 NATIONAL CADET CORPS

13.1 The National Cadet Corps (NCC) was established by virtue of the NCC Act, 1948. It has completed 70 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 responsible citizens of tomorrow. The motto of NCC is "Unity and Discipline".

13.2 The Government of India in 2010 had sanctioned increase in NCC cadet strength by 2 lakh from 13 lakh to 15 lakh. This expansion is planned in five phases of 40,000 cadets per phase. The 4th Phase of the expansion sanctioned on August 2, 2017 is presently under implementation. The sanctioned strength as on date is 14.20 lakh (upto Phase three) and the total number of NCC Units are 814.

13.3 Wing-wise distribution of enrolled cadet strength as on September 30, 2018 is as under:

Wing	Boys	Girls	Total	%
Army	794779	391526	1186305	89.25%
Navy	58949	14717	73666	5.54%
Air	52010	17221	69231	5.21%
Total	905738	423464	1329202	100%

13.4 As on date NCC covers a total of 17374 institutions which includes 12545 schools and 4829 colleges across the country.

Main Activities and Important happenings

13.5 **New Raisings in the 4th Phase of 2 lakh Cadet Expansion Programme:** One NCC Group HQ, eight NCC Army Units, two NCC Naval Units and one NCC Air Unit have been sanctioned by Government of India on August 2, 2017 for raising in the 4th Phase. The raisings are currently underway. This will increase the number of NCC Units to 825 and the cadet strength to 14, 60,000. The details of the 4th Phase are as under:

NCC Units/ Estt.	4th Phase
Gp HQ	Gp HQ Koraput (Odisha)
Army Units (Girls)	4 Haryana Girls Bn NCC, Nuh
Army Unit	6 Andhra Pradesh Bn NCC, Anantpur
	7 Bengal Bn NCC, Balurghat
	5 Kerala Bn NCC, Wayanad
	5 Karnataka Bn NCC, Chikkaballapur
	1 Chhattisgarh Bn NCC, Korba
	2 Arunachal Pradesh Bn NCC,Tawang
	2 Mizoram Bn NCC,Lunglei
Naval Units	1 Lakshadweep Naval Unit NCC, Kavaratti
	5 Odisha Naval Unit NCC, Paradip
Air Unit	2 Odisha Air Sqn NCC, Jharsuguda

13.6 ***Institutional Training:*** The aim of this training is to expose the youth to a regimental way of life and to instill in them discipline, orderliness and personality development. All enrolled cadets go through the Institutional Training in their respective schools/colleges as per specified syllabi for each wing of NCC. Notable

improvements during the period included the following:

(a) Institutional training includes basic military training to the cadets as part of the curriculum and prepares them to join the Armed Forces.

(b) As part of an internal review cum updation of Training Material existing in the training environment, new Handbooks have been issued for use at Associate NCC Officers (ANOs) & Cadets levels for all three Service Wings and uploaded on NCC Web Page.

(c) Institutional training conducted at colleges and schools is the mainstay of NCC training and is conducted by ANO and Armed Forces personnel. The syllabus comprises Common Subjects and Service Subjects in the ratio 70:30. Emphasis is on practical training. Case study method of instruction, wherever possible, is made to facilitate active participation and better assimilation.

13.7 ***Camp Training:*** Recently exhaustive Camp instructions have been formulated in the form of a Manual and disseminated in the environment for implementation at Unit/ Group levels. Camp training is the practical manifestation of institutional training. The cadets are exposed to the excitement of camp life where they apply the theoretical knowledge that they had gained in Institutional Training. It is mandatory for Junior Division/ Wing cadets to attend at least one camp and Senior Division/ Wing cadets to attend a minimum of two camps during the period of their enrolment. Only Second year JD/JW cadets and Second/ Third year SD/SW cadets will attend camps including Centrally Organised Camps (COCs) as per authorization. The various types of camps conducted by the NCC are as follows:

(a) ***Annual Training Camps (ATC):*** Annual Training Camps are planned and conducted at State Directorate level so as to ensure that a minimum of 50% of Junior Division/ Wing (JD/JW) cadets and 66% of Senior Division/ Wing (SD/SW) cadets attend at least one camp per year. These camps are of 10 days duration. They comprise basically of ATCs at NCC unit levels and CATCs (combined ATCs) at NCC Group levels.

(b) ***Centrally Organised Camps (COCs):*** These camps are of an all India nature and are planned at DGNCC in consultation with nominated Directorates. Selected cadets, as per vacancy allotted to each Directorate attend these. Duration is of 12 days. COCs are of following types:

(i) ***Ek Bharat Shreshtha Bharat (EBSB):*** Based on recent directions of Prime Minister, EBSB is being conducted to foster National Integration and increase awareness about heritage and culture of different sister States on a reciprocal basis. A total of 35 EBSB Camps are conducted every year having approximately 20,400 cadets from all States and Union Territories. All States have been paired into "two States buddy pair system" for better cultural exchange.

(ii) ***Vayu Sainik Camp (VSC):*** Every year an All India Vayu Sainik Camp for Air Wing SD/SW cadets is organized for a period of 12 days. 600 SD/SW cadets from all parts of the country participated in this camp. This year, VSC was planned from October 11 – 22, 2018 at Jodhpur conducted by Rajasthan Directorate.

(iii) ***Nau Sainik Camp (NSC):*** NSC of 12 days duration is organized once in a year to train Naval cadets in Naval wing

activities. 386 SD & 204 SW cadets of Naval wing from all parts of the country participate in the camp. This year NSC camp was conducted at Naval Base Karwar from October 14-22, 2018.

(iv) ***Thal Sainik Camps (TSC):*** One TSC each is conducted at Parade Ground, Delhi Cantt every year for boys and girls. Total 1360 cadets (680 Boys & 680 Girls) from all parts of the country participated in the camp during September 17 – 28, 2018.

(v) ***Leadership Camps:*** These camps are conducted on All India basis. Six Advance Leadership Camps (ALC), including two SSB Screening Capsules, are organised every year. Every year 1800 Cadets attend these camps. Focus is on personality development leadership skills and orientation for induction into Armed Forces.

(vi) ***Rock Climbing Training Camps (RCTC):*** Eight RCTC are held every year to expose the cadets to the basics of rock climbing and to inculcate the spirit of adventure. Four of these camps are held at Gwalior in Madhya Pradesh and another four camps are conducted by NCC Directorate Uttarakhand in Pauri. Every year 1080 cadets attend these camps.

(vii) ***Republic Day Camp (RDC):*** Republic Day Camp is conducted at Army Parade Ground, Delhi Cantt from January 1 to 29, every year. The Camp is attended by approximately 2070 cadets from all over India and approximately 100-120 cadets of friendly foreign countries with whom NCC has an ongoing Youth Exchange Programme. Inter Directorate competitions in training, cultural competitions and National Integration awareness programmes are conducted during the month long camp. Two NCC marching contingents and two NCC bands participate in the Republic Day Parade on Rajpath on January 26 every year. Important dignitaries visit this camp.

(viii) ***Prime Minister's Rally:*** The Prime Minister's Rally, the most prestigious event of the NCC Republic Day Camp is held on January 28 every year. Contingents from all the 17 State NCC Directorates participate in the March Past. Cadets participate during this rally wherein they display their skills in various activities, like parasailing, band display, slithering and a simulated Army action. Fly past by NCC aircraft is also conducted during the PM's Rally. The PM's Rally culminates with award of Prime Minister's Banner to the winning Directorate by the Prime Minister.

13.8 ***Flying Training:*** Flying Training is being conducted in NCC with a view to giving an air experience to the Air Wing NCC cadets (SD/SW). At present flying facilities are provided at 50 NCC Air Sqn across the all States of the country. 110 New Virus SW 80 aircrafts are under induction and will be operational by October 2019.

13.9 ***Yachting Special Training Camps:*** Cadets of Naval Wing are also trained and exposed to the basic skills of Kayaking during Special Yachting Camps. INWTC Goa has been made as Nodal Centre for these training activities since 2018. Intention is to train them on advance Yachting and is also provide them the requisite certification advantage benefit.

13.10 ***Attachment Training:*** NCC cadets derive immense value by attachment to Armed Forces Units. Guidelines for each service specific training and instructions for programme during attachment have been laid down in the Training Directive. Details of Attachment training conducted every year are as under:

(a) Army Units. 440 officers and 20,000 cadets including 560 SW cadets attend the attachment training annually with regular Army Units for 12 days.

(b) 120 Senior Division cadets undergo attachment training at Indian Military Academy, Dehradun and 48 SW cadets to Officers Training Academy, Chennai.

(c) 1000 SW cadets are attached with various Military Hospital for 12 days.

(d) 100 Air Wing NCC Cadets (66SD and 34 SW) undergo attachment training with Air Force Academy, Dundigal. This training is conducted twice in a year for 13 days each in June and December respectively.

(e) Every year 18 ANOs and 200 Cadets of the Air Wing are attached to various Air Force Stations for a period of 14 days.

(f) 170 SW and 25 SD cadets of Naval Wing undergo attachment training with the Indian Naval Academy, Ezhimala. This training is conducted for 12 days in December every year.

(g) A total of 295 SD Cadets undergo Sea Training and Sea attachment of 12 days each onboard naval ships at Vizag, Mumbai & Kochi. Cadets are imparted intensive naval training in various naval subjects.

(h) ***Naval Academy Attachment Training:*** Annual Training Camp for 170 SW cadets was conducted from January 9 – 20, 2019 at Kozhikode this year.

(i) ***Technical NCC Camp for Naval Wing:*** 103 SD and 43 SW Cadets from Engineering Colleges at Chennai attended the Annual Technical Camp from June 27 to July 9, 2018. The cadets were taken to Naval Engineering Establishments at INS Valsura, Shivaji and Naval Dockyard at Mumbai on study tour.

(j) ***Foreign Cruises:*** Over Seas Deployment (OSD) of 1st Training Sqn based at Kochi onboard IN Ships is conducted twice in a year to various foreign ports. This year two OSD were conducted. A total of 20 SD cadets and 02 supervisory staff each visited Port Louis (Mauritius), Port Victoria (Seychelles) and Dar-Es-Salaam (Tanzania) from February 14 to April 3, 2018 and Lumut (Malaysia), Changi (Singapore) and Belawan (Indonesia) from September 10 to October 18, 2018.

Training of Trainers

13.11 ***Officers Training Academy (OTA), Kamptee:*** NCC OTA was established on March 1, 1957 and formally inaugurated on March 6, 1957 by the then Deputy Defence Minister. Imparting training to ANOs, JCOs and NCOs (maximum 500 at a time) posted to NCC is the principal task of this Academy. SSB Capsules are also conducted for potentially selected approximately 155 NCC Cadets for induction into Armed Forces each year.

13.12 ***Officers Training Academy (OTA) Gwalior:*** The Girls wing for pre-commission training for Lady ANOs which was shifted to Gwalior in April, 1965 is presently known as OTA. Gwalior is a premier women officer training institution. The courses are conducted for the lady ANOs, GCIs and WTLO's. SSB Capsules are also conducted for potentially selected approximately 100 NCC Cadets for induction into Armed Forces each year.

13.13 Following trainers are trained in these two institutes each year in a programmed manner:

(a) ANOs – 775

(b) Refresher Course for ANOs – 550

(c) PI Staff Orientation for JCOs/ NCOs – 5000

Adventure and Sports Activities

13.14 ***Adventure Activities:*** The aim of adventure activities is to inculcate a spirit of adventure, explorative inquisitiveness, develop stamina, endurance, self-confidence, team spirit Espirit-de-corps amongst the cadets. NCC cadets are given the opportunity to participate in a host of adventure activities including Mountain Treks and Expeditions, Trekking, Parasailing, Sailing, Scuba Diving, Kayaking, Camel safari etc. Adventure based activities enable cadets to hone leadership skills and enhance their character qualities. Cadets with potential are given opportunities to participate in expeditions requiring higher degree of expertise and proficiency.

(a) ***Mountaineering Expeditions:*** NCC has been conducting two mountaineering expeditions every year, one each for the girl and boy cadets. 20 SW/SD cadets participate in each expedition. First ever Mt Everest Expedition of NCC Cadets (Boys) scaled the world's highest peak in two batches on May 19 and 20, 2013 and first ever Mt Everest Expedition of NCC Cadets (Girls) scaled the world's highest peak in two batches on May 21 and 22, 2016. This year NCC Girls cadets have already scaled Mt Deo-Tibba (6001m) Peak in Himachal region in September, 2018 and Boys cadet have scaled Mt Saifee (6167m) Peak in Garhwal Himalayan during May-July, 2018.

(b) ***Mountaineering Courses:*** 354 Cadets vacancies of Basic, Advance, Adventure, Method of Instructions (MOI) and Search & Rescue are subscribed by NCC from the following Institutes every year and the course fees are funded by Central and State Governments on sharing basis:

(i) Atal Bihari Vajpayee Institute of Mountaineering and Allied Sports, Manali.

(ii) Nehru Institute of Mountaineering (NIM), Uttarkashi.

(iii) Himalayan Institute of Mountaineering (HMI), Darjeeling.

(iv) Jawahar Institute of Mountaineering & Winter Sports, Pahalgam (J&K).

(c) ***All India Trekking Expedition:*** A total of 25 All India Treks are conducted by 15 Directorates in a training year with strength of each Trek being 500 cadets. Total participation of cadets is approximately 12,000 cadets.

(d) ***Camel Safari:*** Camel Safari is conducted by Rajasthan Directorate in the deserts of Jaisalmer for a period of 12 days in mid November every year. 20 Indian cadets participate along with the foreign cadets.

(e) ***Para Basic Course:*** The course is conducted every year during September and November at PTS Agra (two courses per year). 40 Senior Division Boy and 40 Senior Wing Girl cadets are trained for a period of 24 days in two batches at PTS Agra under the aegis of Army Airborne Training School, Agra.

(f) ***Para-sailing:*** 84 new parasails are under process of procurement by Logistic Directorate. Parasailing Instructors are trained at respective nodes

nominated by the State Directorates. During Prime Minister Rally, Parasailing demonstration is held as an important event. Delhi Directorate is responsible for the Para Sailing demonstration during Prime Minister Rally.

(g) ***Slithering:*** This activity is conducted regularly at the Directorate level. Of this, 25 SD and 25 SW cadets are selected for participating in the slithering demonstration during PM's Rally every year. In this rally 25 Senior Division Boy and 25 Senior Wing Girl cadets slither down from MI 17 helicopter and 2 Advanced Light Helicopter (ALH).

(h) ***Sailing expedition:*** Each NCC Directorate undertakes a minimum of one sailing expedition for a period of 10 to 12 days covering a total distance of 400 to 500 kms. 40 to 60 cadets from each Directorate participate in the event. During Sailing Expedition, the cadets get practical exposure in Boat Pulling and Sailing. They face and overcome the hazards of change in weather conditions and changing mode of Rivers/Sea. During this expedition, cadets also undertake social agendas and Clean ship/ Swachhta Abhiyan in remote coastal villages.

(i) ***Sea sorties:*** Cadets are put on board Naval Ships for sea experience.

(j) ***Scuba Diving:*** A total number of 142 cadets participated in Scuba Diving Camps with assistance from the Naval Diving Teams of Indian Navy. This year, Kerala and Lakshadweep, Maharashtra and TNP&AN Directorates conducted Scuba Diving Camps.

(k) ***Sailing Regatta:*** Sailing Regatta is conducted every year at INS Chilka in Odisha. A total of 102 (51 SD and 51 SW) cadets participate in this competition over a period of 8 days.

13.15 ***Sports:*** NCC Cadets from all NCC Directorates actively participate in various sports activities at the National level. Some of the major sporting activities conducted during the year are as follows:

(a) ***Zonal Shooting Coaching Capsule:*** Firing being one of the core training activities of NCC, shooting discipline enjoys special place in NCC sporting activities. Every year DG NCC shooting team participates in various national level shooting events. To facilitate talent hunt, grooming of young shooters and to hone skill of shooting, every year 10 days of Coaching Camp is conducted, zone wise at designated Nodes.

(b) ***GV Mavlankar Shooting Championship (AIGVMSC):*** Total 55 Selected NCC cadets participated in 28th All India GV Mavlankar Shooting Championship Competition, 2018, organized by NRAI in the month of September/ October. NCC shooting team won 9 Medals (3 Gold, 5 Silver and 1 Bronze).

(c) ***National Shooting Championship Competition (NSCC) (2018):*** NCC shooters took part in the National Shooting Championship and won two Bronze medals.

(d) ***Jawaharlal Nehru Hockey Cup Tournament:*** Junior Boys team (U-17) Odisha Directorate reached the final in the tournament.

(e) ***Subroto Cup Football Tournament:*** This year, U-14, Sub Junior Boys team of Odisha Directorate reached the final.

(f) ***(R&V) Equestrian Events:*** NCC cadets of Remount & Veterinary units participate in various National level equestrian competitions every year and have won many medals till date.

13.16 ***Youth Exchange Programme (YEP):*** The Youth Exchange Programme, presently are being carried out with eleven friendly countries including Bangladesh, Bhutan, Kazakhstan, Kyrgyzstan, Maldives, Nepal, Russia, Singapore, Sri Lanka, Turkmenistan and Vietnam, so as to heighten awareness among participants and appreciate each other's socio-economic, cultural realities and act as goodwill ambassadors to project our Nation's image abroad. YEP has successfully conducted with eleven friendly countries including exchange of 158 Indian NCC cadets and 158 foreign cadets.

13.17 ***Social Service and Community Development (SSCD) Programmes:*** The social service and community development activities include Swachh Bharat Abhiyan, Tree Plantation, Anti-Drug Rally, Cancer Awareness, Disaster Relief, Blood Donation, Beti Bachao Beti Padhao, AIDS Awareness, Care for the Blind, Traffic Control and other similar relevant contemporary social issues.

13.18 ***SSCD - Present Status:*** Currently based on Training Directive, 'Swachh Bharat Mission' & 'Awareness on Digital Payment' have been laid down as focal areas. Other than this, activities like Gender Equality, Anti Drug/ Tobacco Awareness, Water Conservation Drive, Tree Plantation Drive, Immunization Drive and Blood Donation are being carried out on a routine basis. Guidelines as part of SSCD Action Plan have also been disseminated.

13.19 ***Social Service & Voluntary Community Development Achievements:*** The aim of Social Service and Community Development Programmes is to sensitise the youth to the problems faced by society and help them to contribute positively towards solving them. The various Social Service and Community Development activities in which the cadets took part enthusiastically this year are:

(a) ***Environment Protection Project:*** Drives to generate awareness about ill effects of using plastic was conducted by all Directorates during the year, wherein NCC cadets actively participated in Tree Plantation drives/ door to door campaigns/interaction with local residents to spread awareness. Over 1.55 lakh saplings were planted.

(b) ***AIDS Awareness Programme:*** A total of 20,000 cadets participated actively in the AIDS Awareness Programme throughout the country during the year. NCC organized a number of rallies to spread awareness on HIV/AIDS.

(c) ***Cancer Awareness Programme:*** NCC cadets actively participated in Cancer Awareness Programme organized in various cities. Cancer Care India (CACI) and NCC have joined hands to launch Cancer Awareness Programmes (CAPS) throughout the country. Every year during TSC/ VSC/NSC a Cancer Awareness Competition is also organised.

(d) ***Anti Drugs/Tobacco Programme:*** As part of National Drive approximately 78,000 cadets participated in various anti drugs activities on June 26.

(e) ***Mission INDRADHANUSH: Immunization:*** To assist in the national goal of immunizing children in the affected districts pan India NCC cadets have ensured this year at least 61,500 children have been immunized.

(f) ***International Yoga Day (IYD18):*** The performance of Yoga by more than 7 lakh cadets on international Day of Yoga conducted in 6811 venues pan India, including Leh in the North, Dwarka in the West, Tezu (Arunachal Pradesh) in the East, Nagarcoil (Kanyakumari) in the South and in the Islands of Andaman & Nicobar and Lakshadweep was a phenomenal achievement.

(g) ***Swachh Bharat Abhiyan:*** A massive focus is laid each year on Swachhta based programmes throughout the different states. Following volunteer mass participation by NCC was achieved pan India:

(i) From September 15 – October 2, 2018 over 10.5 lakh cadets took part voluntarily in various cleanliness drives, part of Swachhta Hi Sewa fortnight.

(ii) From December 1 – 15, 2018 over 7.72 lakh cadets took part in Swachhta Pakhwada.

(h) ***Digital Literacy (e-payment):*** Based on the Prime Minister directions NCC has joined the National Digital Literacy Campaign on large scale and has till date indirectly ensured public awareness of one crore population pan India.

(i) ***Blood Donation:*** A total of approximately 1,15,000 Blood Units were donated by NCC Cadets pan India in various Camps and Programmes.

(j) ***Disaster Relief:*** 45,000 NCC cadets were actively involved in assisting the civil administration in relief operations during the Kerala and Karnataka floods.

(k) ***Water Conservation:*** As a part of youth synergy actions approximately 97,000 cadets participated in various kind of water conservation programmes, rallies and efforts including Water Day Celebration pan India.

(l) ***Beti Bachao Beti Padhao:*** As part of awareness programmes based on concept of Beti Bachao Beti Padhao at least 37,000 cadets participated pan India.

(m) ***Adoption of Villages/Slum Areas:*** This has been laid down as a Focus Area. Every Unit and Group HQs are adopting villages / slum areas in different parts of the country to assist the State administration in carrying out improvement of civic amenities in these villages to ensure all round and inclusive growth. This also provides an opportunity to NCC cadets to identify themselves with different sections of society and people living in villages.

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CHAPTER **14**

DEFENCE COOPERATION WITH FOREIGN COUNTRIES

14 DEFENCE COOPERATION WITH FOREIGN COUNTRIES

14.1 Defence cooperation between India and various friendly countries received further impetus during the year with various bilateral and multilateral high level visits and exchanges. The whole gamut of issues of defence cooperation were taken forward in a structured manner with various countries. There were 12 Defence Ministerial level visits to India during the year, while Raksha Mantri visited 13 countries. The following are major highlights of defence cooperation between India and other foreign countries during the period.

Argentina

14.2 An MoU on Defence Cooperation was signed with Argentina on February 18, 2019 in New Delhi to create an institutional cooperation arrangement between both the countries.

Australia

14.3 Chief of Royal Australian Navy led delegation visited India from January 19-20, 2018. The 7th Indian Air Force (IAF) and Royal Australian Air Force (RAAF) Air Staff Talks were held at New Delhi from September 5-7, 2018. The 12th Indian Navy (IN) and Royal Australian Navy (RAN) Staff Talks were held at New Delhi from September 10-11, 2018. Joint Army Exercise 'AUSTRAHIND' was held in India from August 23 – September 5, 2018. A delegation led by Defence Secretary attended India-Australia Foreign and Defence Secretaries' 2+2 Dialogue, held at Australia from October 10-11, 2018. The 6th India-Australia Army to Army Staff Talks (AAST) were held at New Delhi from October 25–27, 2018. Joint India-Australia Naval Exercise 'KAKADU' was conducted in 2018. A delegation led by Chief of Air Force, Royal Australian Air Force visited India from February 4-7, 2019. A delegation led by Additional Secretary visited Australia to attend the 6th India-Australia Defence Policy Talks (DPT) from March 13-15, 2019.

Bangladesh

14.4 The inaugural Annual Defence Dialogue (ADD) with Bangladesh was held on May 7-8, 2018 in New Delhi. An MoU on Academic Exchange and Co-operation between the Army Public Schools of India and Cantonment Public and English Medium Schools and Colleges of Bangladesh Army was signed on May 8, 2018. A delegation led by Naval Chief visited Bangladesh from June 25-28, 2018. Annual Staff Talks between Air Force, Navy and Army of the two countries were held during July 22-24, August 8-10, and November 1-3, 2018 respectively. A delegation led by Chief of Air Staff, Bangladesh Air Force visited India from October 13-19, 2018. A delegation led by Chief of Air Staff, visited Bangladesh from February 11-14, 2019. Joint India-Bangladesh Naval Exercise 'CORPAT' was conducted in 2018. Joint Army Exercise 'SAMPRITI' was held in Bangladesh from March 2-15, 2019.

Brazil

14.5 A delegation led by Chief of Air Staff visited Brazil from June 4-7, 2018. Additional Secretary led delegation visited Brazil from February 11-15, 2019 to hold 6th India-Brazil Joint Defence Committee (JDC) meeting, and to further the engagement between Defence industries, Training Centers and Military facilities of both countries.

Cambodia

14.6 A delegation led by Raksha Mantri visited Cambodia on June 11, 2018 for holding bilateral meeting with the Defence Minister of Cambodia to enhance bilateral defence cooperation.

China

14.7 A delegation led by Raksha Mantri visited Beijing to attend Shanghai Cooperation Organisation (SCO) Defence Ministers' meeting from April 22-25, 2018. The 4th India-China Working Group meeting was held in New Delhi from June 7-8, 2018. A delegation led by the State Councilor and Defence Minister of China visited India from August 21-24, 2018 to hold a delegation level talk with Raksha Mantri. The 9th India-China Annual Defence and Security Dialogue was held in Beijing from November 12-14, 2018.

Egypt

14.8 The 7th Joint Defence Committee (JDC) meeting was held in Egypt on January 22-23, 2018. Raksha Mantri visited Egypt to discuss bilateral defence cooperation issues on September 20-22, 2018. The 8th meeting of the JDC was held at New Delhi on December 26, 2018.

France

14.9 India and France continued to build on their robust and mutually beneficially partnership in defence cooperation. Visit of French Defence Minister to India and signing of an Agreement regarding Provision of Reciprocal Logistics Support between Indian and French Armed Forces was a significant achievement. Raksha Mantri led delegation also visited France from October 11-12, 2018. Joint India-France Naval Exercise 'VARUNA' was conducted in 2018. A delegation led by the France's Chief of the Naval Staff visited India from January 6-7, 2019.

Germany

14.10 A delegation led by the Chief of the German Navy visited India from October 15-18, 2018. Defence Cooperation with Germany increased significantly this year, with the visit of Raksha Mantri led delegation to Germany from February 12-13, 2019. India-Germany 9th High Defence Committee (HDC) meeting co-chaired by Defence Secretary was held on February 28, 2019 in New Delhi.

Indonesia

14.11 Minister of Defence of Indonesia visited India on January 19, 2018 and held bilateral Ministerial dialogue with Raksha Mantri. 7th Army to Army Staff Talks were held in Bali, Indonesia on January 24, 2018. Prime Minister visited Indonesia from May 29-30, 2018 during which an Agreement concerning cooperation in the field of Defence was signed. A delegation led by Indonesian Secretary General of Ministry of Defence attended the 6th India-Indonesia Joint Defence Cooperation Committee (JDCC) meeting held on August 9, 2018 in India. 9th Navy to Navy Staff Talks between India and Indonesia were held at New Delhi on August 28, 2018. Raksha Mantri visited Indonesia for a bilateral meeting with Defence Minister of Indonesia on October 23, 2018. 2nd Air to Air Staff Talks between India and Indonesia were held in Jakarta from November 20-23, 2018. Joint Army Exercise 'GARUDA SHAKTI' was held in Indonesia form March 7-18, 2018.

Israel

14.12 A delegation led by Chief of Air Staff visited Israel from May 22-24, 2018. The 14th Joint Working Group meeting with Israel was held at New Delhi from July 2-3, 2018. Annual Staff talks between Army, Navy and Air Forces of the two countries were held on March 26-28, June 18-20 and October 15-18, 2018 respectively. A delegation led by the Commander of Israel Air Force visited India from March 10-14, 2019.

Italy

14.13 Defence Cooperation with Italy gained strength with the resumption of Joint Defence Committee (JDC) dialogue after a gap of more than 8 years. The 9th JDC was held in Rome from May 14-15, 2018, co-chaired by Defence Secretary. The engagement on Services side has also gained momentum through talks with Italian Forces on October 11-12, 2018.

Japan

14.14 A delegation led by the Chief of Joint Staff, Japan Self-Defence Forces visited India from March 5-7, 2018. The 2nd Air-to-Air Staff Talks with Japan were held in Japan from June 5-6, 2018. The 6th Defence Policy Dialogue (DPD) with Japan, co-chaired by Defence Secretary, was held on June 18, 2018 at New Delhi, followed by India-Japan 2+2 Dialogue held on June 19, 2018, wherein the Foreign Secretary and the Defence Secretary led the Indian delegation. Defence Minister of Japan led delegation visited India to attend 4th India-Japan Annual Defence Minister's Dialogue on August 20, 2018. India-Japan Joint Army Exercise 'FTX JAPAN' was held in India from November 1-14, 2018.

Jordan

14.15 A Memorandum of Understanding (MoU) between India and Jordan on Defence Cooperation was signed on March 1, 2018 during the visit of the King of Jordan to India.

Kazakhstan

14.16 5th meeting of India-Kazakhstan Joint Working Group on Defence and Military Technical Cooperation was held in Astana from May 31 - June 1, 2018. An MoU and Technical Agreement between India and Kazakhstan concerning arrangements for joint deployment of the Kazakh Peacekeeping contingent as part of Indian Battalion in the United Nations Interim Force in Lebanon (UNIFIL) was signed on August 21, 2018. A delegation led by Raksha Mantri visited Kazakhstan from October 3-4, 2018 for holding bilateral meetings with the Defence Minister of Kazakhstan.

Kenya

14.17 Defence Secretary led delegation visited Kenya for bilateral discussion in January 2018. Kenyan Cabinet Secretary (Minister) for Defence visited India

Bilateral meeting with Kazakhstan

during June 17-22, 2018. A delegation from Kenya led by Assistant Chief of Defence Forces, visited India to attend the 1st meeting of Joint Defence Cooperation Committee between India and Kenya on February 18, 2019.

Madagascar

14.18 The defence relations with Madagascar were initiated by the visit of Joint Secretary ((Planning and International Cooperation)) led delegation to Madagascar for bilateral discussions in January 2018. A Memorandum of Understanding (MoU) between India and Madagascar on Cooperation in the field of Defence was signed on March 14, 2018 in Madagascar.

Malaysia

14.19 8th Indian Air Force (IAF) – Royal Malaysian Air Force (RMAF) Air Staff Talks with Malaysia were held in Kuala Lumpur from February 14-16, 2018. Joint Army Exercise 'HARIMAU SHAKTI' was held in Malaysia from April 30 – May 13, 2018. 7th Navy to Navy Staff Talks between India and Malaysia were held in India from July 4-7, 2018. A delegation led by Chief of the Air Staff visited Malaysia from September 6-7, 2018. A delegation led by Defence Secretary visited Kuala Lumpur from November 21-22, 2018 for attending the 11th Malaysia-India Defence Cooperation Meeting (MIDCOM). During the meeting, an MoU between Malaysia and India on United Nations Peacekeeping Cooperation was also signed.

Maldives

14.20 Joint MNDF-Indian Navy Marine Commandos Exercise 'Ekatha' was held in April-May 2018. Joint Coast Guard Exercises 'DOSTI' was conducted with Maldives on November 25-29, 2018. Joint Army Exercise 'Ekuverin' was conducted in Maldives from December 15-28, 2018. The 3rd Joint Staff Talks between India and Maldives were held from June 26-27, 2018 in Male. Defence Minister of Maldives visited India from January 23-30, 2019. During the visit, the second India-Maldives Defence Cooperation Dialogue (DCD), co-chaired by our Defence Secretary and Chief of Defence Forces of Maldives, was held on January 24, 2019 in New Delhi.

Mongolia

14.21 Defence Minister of Mongolia visited India from March 6-10, 2018 and had a bilateral meeting with Raksha Mantri on March 8, 2018. Joint Army Exercise 'NOMADIC ELEPHANT' was held in Mongolia from September 10-21, 2018.

Myanmar

14.22 India's defence cooperation with Myanmar enhanced significantly in 2018. 3rd India-Myanmar Air Staff Talks (AST) were held in New Delhi from August 7-9, 2018. A delegation led by Chief of the Air Staff visited Myanmar from September 3-4, 2018. A delegation led by Deputy Commander-in-Chief, Myanmar Defence Services & Commander-in-Chief (Army) (Myanmar Army Chief) visited India from September 17-20, 2018. 7th India-Myanmar Navy Staff Talks were held at New Delhi from October 10-12, 2018. Joint India-Myanmar Naval Exercise 'IMCOR' and 'IN-MN BILAT' was conducted in 2018. India-Myanmar Joint Army Exercise (IMBAX) was held in India January 14-19, 2019. 4th India-Myanmar Army to Army Staff Talks were held in Myanmar from March 13-15, 2019.

Nigeria

14.23 A delegation led by Chief of the Naval Staff, Nigerian Navy visited India from July 16-19, 2018. The Permanent Secretary of Nigerian MoD visited India to attend the 5th Joint Defence Cooperation Committee (JDCC) meeting from January 17-18, 2019.

Oman

14.24 The 8th India-Oman Air Staff talks were held in New Delhi from February 20-22, 2018. Omani delegation led by Minister responsible for Defence Affairs, visited India in September 2018. The 2nd Navy to Navy Staff Talks between India and Oman were held

from September 18-19, 2018 at New Delhi. A delegation led by Defence Secretary visited Oman to attend the 10th meeting of India-Oman joint Military Cooperation Committee (JMCC) held in Muscat on November 28, 2018. Joint Army Exercise 'AL NAGAH' was held in Oman from March 12-26, 2019.

Rwanda

14.25 An agreement between India and Rwanda on cooperation in Defence Fields of Capacity Building, Defence Industry, Science and Technology was signed at Kigali on July 23, 2018.

Republic of Korea (RoK)

14.26 A delegation led by the Minister of National Defence, RoK visited India on August 10, 2018 and had a bilateral meeting with Raksha Mantri. 1st India-RoK Army to Army Staff Talks were held in Seoul from August 29-31, 2018. 1st IN-RoK Navy Staff Talks were held at Seoul on September 13, 2018.

Russia

14.27 Russia continues to remain the most important supplier of defence equipment to India. Raksha Mantri visited Russia from April 3-5, 2018 to attend the 7th Moscow Conference on International Security. Joint Army and Air Force Exercise 'SCO Ex PEACE MSN' was held in Russian from August 16-29, 2018. Joint Air Force Exercise 'EX AVIAINDRA' was held from September 17-28, 2018 and again from December 10-21, 2018. Joint India-Russia Naval Exercise 'INDRA NAVY' was conducted in 2018. The 3rd Staff Talks between Indian Navy and Russian Federation Navy were held in Russia from September 26-28, 2018. A delegation led by Chief of Army Staff visited Russia from October 2-5, 2018. 4th Staff Talks were held between General Staff of the Armed Forces of Russian Federation and HQ IDS from October 31 - November 1, 2018 in India. India-Russia Joint Army Exercise 'INDRA' was held in India from November 18-28, 2018. The 18th India Russia Inter-Governmental Commission on Military Technical Cooperation meeting was co-chaired by Raksha Mantri and Russian Defence Minister on December 13, 2018, in New Delhi when an Agreement on establishing the Indian-Russian Inter governmental Commission on Military and Military-Technical Cooperation was also signed. A delegation led by Land Forces Commander, Russian Federation met Defence Secretary on March 14, 2019 in New Delhi.

Saudi Arabia

14.28 A delegation led by the CNS, Chairman, Chiefs of Staff Committee, visited Saudi Arabia from February 5-7, 2018. The 4th meeting of JCDC was held in Saudi Arabia during January 2-3, 2019.

Singapore

14.29 Defence cooperation with Singapore has seen a significant augmentation, especially at the politico-strategic level in 2018. 12th India-Singapore Defence Policy Dialogue (DPD) was held on May 1, 2018 in India under the co-chairmanship of Defence Secretary and Permanent Secretary (Defence), Singapore. The 11th meeting of India-Singapore Defence Working Group (DWG) was held on September 27, 2018 at New Delhi. Defence Minister of Singapore visited India during November 19-20, 2018 to attend the 3rd meeting of India-Singapore Defence Ministers' Dialogue (DMD) and the Singapore-India Maritime Bilateral Exercise 2018 (SIMBEX 18) at Vizag. The 10th India-Singapore Air Staff Talks were held at New Delhi from January 11-12, 2018, and 13th Navy Staff Talks with Singapore were held at Singapore from April 12-14, 2018. Joint Army Exercise 'BOLD KURUKSHETRA' was held in India from March 27 – April 14, 2019.

Spain

14.30 Defence cooperation between India and Spain has been cordial. Two sides conducted a very constructive and fruitful 3rd Joint Working Group (JWG) meeting in New Delhi on November 26, 2018.

Sri Lanka

14.31 The 5th India-Sri Lanka Annual Defence Dialogue (ADD) was held on January 9, 2018 in New Delhi. Annual staff talks between Air Force, Navy and Army of the two countries were held on January 16-18, February 7-9 and March 20-22, 2018 respectively. A delegation led by Commander of Sri Lanka Army visited India from September 17-19, 2018. Joint India-Sri Lanka Naval Exercise 'SLINEX' was conducted in 2018. A delegation led by Commander, Sri Lankan Navy visited India from March 30 - April 2, 2019.

Sweden

14.32 A delegation led by the Chief of Staff, Swedish Air Force visited India from September 26-29, 2018. A delegation led by Raksha Mantri visited Sweden from February 13-14, 2019 when a bilateral Agreement on Exchange and Mutual Protection of Classified Information for Cooperation in the Defence Area was also signed.

Tajikistan

14.33 Tajik Defence Minister visited India from February 6-9, 2018 and held bilateral meetings. A delegation led by Defence Secretary visited Tajikistan from July 26-28, 2018 to attend the 7th Joint Working Group meeting.

Thailand

14.34 2nd India–Thailand Army to Army Staff Talks were held in Thailand from July 11-13 2018. 9th Air–to-Air Staff Talks were held from August 7-9, 2018 at New Delhi. An Indian delegation led by Raksha Mantri visited Thailand from August 27-28, 2018 for holding bilateral meeting with the Defence Minister of Thailand. Joint Air Force Exercise 'EX SIAM BHARAT' was held from September 3-14, 2018. A delegation led by Commander-in-Chief, Royal Thai Navy visited India from December 18-20, 2018. Joint India-Thailand Naval Exercise 'CORPAT' was conducted in 2018. 11th Indian Navy-Royal Thai Navy Staff Talks and 15th Indo-Thai JWG-EoS Meeting were held at Bangkok from March 12-14, 2019. A delegation led by Deputy Permanent Secretary for Defence, Thailand visited India on March 7, 2019 to attend the 7th meeting of India-Thailand Defence Dialogue, co-chaired by Additional Secretary.

Ukraine

14.35 1st Joint Working Group (JWG) meeting between India and Ukraine was held in Kyiv from June 3-5, 2018.

United Arab Emirates (UAE)

14.36 1st bilateral Naval Exercise 'Gulf Star 1' was held from March 17-22, 2018 off UAE coast. MoS for Defence Affairs of the UAE visited India in October 2018 to discuss bilateral defence cooperation issues with Raksha Mantri. The UAE delegation also attended DEF EXPO 2018. Joint India-UAE Naval Exercise 'BILAT' was conducted in 2018.

Uganda

14.37 An MoU between India and Uganda on Cooperation in the field of Defence was signed at Kampala on July 24, 2018.

United Kingdom

14.38 A delegation led by Chief of the General Staff, UK visited India from February 12-15, 2018. A delegation led by our Chief of Air Staff visited UK from July 10-15, 2018 for attending 100th anniversary celebration of the Royal Air Force. The 19th India-UK Defence Consultative Group (DCG) meeting, co-chaired by Defence Secretary, was held in New Delhi on September 27, 2018. Joint India-UK Naval Exercise 'KONKAN' was conducted in 2018. A delegation led by Defence Secretary visited London to attend the 20th India-UK Defence Consultative Group (DCG) meeting from March 7-9, 2019.

USA

14.39 The year 2018 was a significant and productive year for India-US defence cooperation. Chief of Staff of the United States Air Force led delegation visited India from January 31 - February 4, 2018. A delegation led by our Chief of Naval Staff visited USA from March 19-22, 2018. The inaugural 2+2 Dialogue between Foreign and Defence Ministers of India and US was held in India on September 6, 2018, during which Communications, Compatibility and Security Agreement (COMCASA) was signed by Raksha Mantri and US Secretary of Defense. A delegation led by Chief of the Naval Staff visited US for participating in the 23rd International Seapower Symposium (ISS-23) from September 18-21, 2018. Another Army Joint Exercise 'VAJRAPRAHAR' was held in India from November 19 – December 2, 2018. Joint India-US Naval Exercise 'MALABAR' was conducted in 2018. Raksha Mantri paid a visit to USA for bilateral meetings with US Secretary of Defence and visited US defence establishments during December 3-6, 2018. During these interactions, substantial progress was made on a range of issues including Military-to-Military exchanges and new exercises, establishment of Mini 2+2 dialogue, R&D and defence industry cooperation. A 2+2 forum at Joint Secretary level between India and USA was also instituted and held in New Delhi on January 11, 2019.

Uzbekistan

11.40 Uzbek Defence Minister visited India from September 4-6, 2018 and held various bilateral meetings. The President of Uzbekistan visited India and an MoU on cooperation in the field of Military Education between the Ministry of Defence of India and the Ministry of Defence of Uzbekistan was signed on October 1, 2018. The 1st India-Uzbekistan Joint Working Group (JWG) meeting on Defence Cooperation was held on February 27, 2019 in New Delhi. A delegation led by Defence Secretary visited Uzbekistan from March 25-29, 2019.

Vietnam

11.41 Inaugural Indian Air Force-Vietnamese People's Air Force & Air Defence Air Staff Talks were held at New Delhi from March 7-9, 2018. Raksha Mantri visited Vietnam for a bilateral visit from June 12-15, 2018. 11th India-Vietnam Security Dialogue, co-chaired by Defence Secretary, was held at New Delhi on August 1, 2018. A delegation led by Chief of Army Staff visited Vietnam from November 22-24, 2018. A delegation led by Commander-in-Chief, Vietnam People's Navy visited India from December 5-8, 2018. 3rd Indian Navy-Vietnam People's Navy Staff Talks were held from December 26-28, 2018 in Vietnam.

ASEAN DEFENCE MINISTERS MEETING (ADMM) - PLUS

14.42 The ADMM-Plus is a significant milestone in the evolving security architecture in the Asia Pacific and its meeting is held annually. It is supported by ASEAN Defence Senior Officials' Meeting (ADSOM) and seven Expert Working Groups (EWGs) in various areas of cooperation. Each EWG is co-chaired by an ASEAN member and a non-ASEAN country for a period of three years by rotation. For the cycle 2017-2019, India and Myanmar co-chaired EWG on Military Medicine. The 5th meeting of ADMM-Plus, held at Singapore from October 19-21, 2018 was attended by a delegation led by Raksha Mantri. On the sidelines of ADMM-Plus meeting, Raksha Mantri held bilateral talks with Defence Ministers of Singapore, USA, Malaysia, Philippines, Australia and Vietnam.

CHAPTER **15**

CEREMONIAL AND OTHER ACTIVITIES

15 CEREMONIAL AND OTHER ACTIVITIES

15.1 The Ministry of Defence encourages and promotes both academic and adventure activities through autonomous institutions which are provided regular financial assistance. These institutions are:

(i) The Institute for Defense Studies and Analyses (IDSA), New Delhi.

(ii) Nehru Institute of Mountaineering (NIM), Uttarkashi.

(iii) Himalayan Mountaineering Institute (HMI), Darjeeling.

(iv) Jawahar Institute of Mountaineering and Winter Sports (JIM & WS) at Pahalgam.

(v) National Institute of Mountaineering and Allied Sports (NIMAS) at Dirang.

15.2 The important activities of these institutions during the period are enumerated in the succeeding paragraphs.

INSTITUTE FOR DEFENCE STUDIES AND ANALYSES (IDSA)

15.3 The Institute for Defence Studies and Analyses (IDSA) is a registered body under the Registration of Societies Act III of 1860 (Punjab Amendment Act 1957) as amended from time to time. It was established in November 1965. The Institute is a non-partisan, autonomous body dedicated to objective research and policy-relevant studies on all aspects of defence and security. Its mission is to promote national and international security through the generation and dissemination of knowledge on defence and security-related issues.

15.4 IDSA is fully funded by the Ministry of Defence. The scholars at IDSA are drawn from academia, the defence forces and the civil services. The research faculty of 48 scholars including 8 Serving Officers on study leave is organised under 13 Centres. The Institute also hosted 3 Visiting Fellows from foreign countries under its Visiting Fellowship Programme and 5 Interns under its Internship Programme during the year, which has improved outreach of the Institute as well as enhanced its visibility across the globe.

15.5 The research centres at IDSA are engaged in studies on all regional and global developments influencing India's security and foreign policy. With India engaging vigorously with the region and the World, IDSA's interaction with the wider strategic community at the national and international level has increased substantially. It is carrying out research on many contemporary subjects such as climate change, energy and water security, cyber and space security. The Institute is continuously focussing on emergence of new challenges and India's response to such challenges. In view of India's emphasis on improving its relations with the immediate neighbourhood, IDSA has a team of scholars working on the South Asian region. India's relations with the ASEAN, African and Latin American countries as well as the security environment in these continents are continuously monitored. Special attention is paid to defence reforms, including procurement

policies and procedures, defence diplomacy and security dialogues initiated by the Government.

15.6 During the year, a number of eminent visitors and delegations from abroad were hosted at the IDSA. Research teams from prominent think-tanks and government departments were also engaged. IDSA's website www.idsa.in continues to remain a source of information on a wide range of security and defence issues for researchers, students and public. Social media tools like YouTube, Facebook and Twitter etc. have also been used extensively to enhance IDSA's outreach.

15.7 IDSA remains committed to research on policy relevant studies which contribute to national and international security. Scholars from IDSA enhance their understanding as well as reach through interaction with policy makers on a continuous basis. IDSA pursued research projects on behalf of various government departments. It expanded its training programmes to include officers from larger number of government departments primarily to share its research findings on important subjects aligned to defence and security and update their knowledge on a wide gamut of issues having bearing on their professional field.

15.8 Various events like International conferences/ seminars, workshops/ panel & roundtable discussions, talks, bilateral interactions and training programmes etc., were organized by IDSA during the year. Some of these are indicated below:

(a) ***International Conferences/ Seminars:*** International conferences were organized by IDSA throughout the year of which the important ones are"

- ***August 28-29, 2018:*** IDSA jointly organised a conference with Institute for Policy, Advocacy, and Governance (IPAG), Dhaka, Bangladesh, on Digital Age & Cyber Space: Maximizing Benefits, Minimizing Risks, Unleashing Creativity. It was inaugurated by CEO, NITI Aayog, Government of India.

- ***September 5-6, 2018:*** 3rd West Asia Conference, titled Changing Security Paradigm in West Asia: Regional and International Responses was inaugurated by Minister of State for External Affairs, Government of India.

- ***December 18-19:*** IDSA hosted its 11th South Asian Conference titled "Non-Traditional Security Challenges in South Asia: An Agenda for Cooperation".

- ***March 26-28, 2019:*** IDSA hosted its annual flagship event, the 20th Asian Security Conference which focussed on "Multipolarism in Asia: Issues and Challenges". The event was attended by 31 participants from 19 countries. Minister of State (Independent Charge) Housing and Urban Affairs, Government of India, delivered a special address on "The Role of Infrastructure in India's Growth and Emergence in Asia".

(b) ***Workshop/ Panel Discussion:*** The institute organised several workshops/ panel discussions during the year, including:

- ***May 10, 2018:*** One day workshop on 'Major Powers and Korean Peninsula: Policies, Politics and Perspectives' was organized by IDSA.

- ***September 11, 2018:*** IDSA in collaboration with International Committee of the Red Cross (ICRC) organised one day seminar on 'Possible Human Cost of Cyber Warfare'.

IDSA – BIMSTEC Workshop December 5-7, 2018

- ***December 5-6, 2018:*** A workshop on "Cyber Security Cooperation" was organised jointly by IDSA and BIMSTEC.

- ***December 7, 2018:*** IDSA and Japan Foundation organized India-Japan 'Cooperation in Indo-pacific and Beyond 2025: Corridors, Connectivity and Contours'.

(c) ***Limited Interactions:*** The limited interaction undertaken by the institute included:

- ***December 5, 2018:*** Interaction on 'Evolving Contours of Dialogue with Taliban' with Former Deputy Foreign Minister of Afghanistan.

- ***January 11, 2019:*** Interaction on 'European Union Policy on Iran' with Non Resident Fellow, Carnegie Europe

- ***January 15, 2019:*** The United Nations Under-Secretary General and High Representative for Disarmament Affairs on "Weapons and Technology, including issues related to Weapon of Mass Destruction."

(d) ***Talks:*** The talks interactions undertaken by the institute included:

- ***April 9, 2018:*** 'Emerging Technologies in the Future and their Impact on Warfighting' by Scientist 'G' and Director (Admin and SQR- System Analysis, Quality and Reliability), Defence Research and Development Organisation (DRDO).

- ***April 13, 2018:*** 'Using China's Pre-1949 Official/Authoritative Documents to Examine PRC's Claim of Sovereignty over Tibet' by Chair Professor at the City University of Hong Kong.

- ***May 10, 2018:*** 'Uncharted Waters for the Myanmar Dual State' by Director of Tampadipa Institute, Yangon.

- ***May 14, 2018:*** 'China's Military after the Re-organisation' by Major General, Dean of Army War College, Mhow.

- ***June 7, 2018:*** 'Prime Ministers' visit to Indonesia and the Emerging Cooperation between India and

Indonesia' by former professor of Jawaharlal Nehru University.

- ***June 13, 2018:*** 'China's Maritime Silk Route and Shifting World Order: An American Perspective' by Associate Professor at the College of International Security Affairs (CISA), National Defense University, Washington, D.C.

- ***June 29, 2018:*** 'Problematic Sovereignty on China's Periphery: Cases of Tibet and Taiwan' by Lecturer in Chinese Politics at the University of Southampton.

- ***July 4, 2018:*** 'Domestic Politics in Bangladesh and Future of Bilateral Relations' by India's High Commissioner to Bangladesh.

- ***July 5, 2018:*** 'Current State of India-Bangladesh Relations and its Future' by His Excellency, Bangladesh's High Commissioner to India.

- ***July 24, 2018:*** 'The Rise of China as a World-Class Military Technological Power - Geo-Strategic and Geo-Economic Implications' by Director of UC Institute on Global Conflict and Cooperation (IGCC).

- ***July 26, 2018:*** 'Defence Planning Committee: An Overview' by Lieutenant General, Chief of Integrated Defence Staff to the Chairman Chiefs of Staff Committee (CISC).

- ***August 14, 2018:*** 'National Military Culture and Civil-Military Relations' by Air Marshal (Retd.).

- ***August 24, 2018:*** 'India's Maritime Security Challenges' by Admiral, the Chief of the Naval Staff.

- ***September 20, 2018:*** 'Counter-Insurgency in India and the Kautilyan Upayas' by Lecturer at South Asia Institute of Heidelberg University.

- ***September 20, 2018:*** 'Traces of Indian Culture in Vietnam' by President of Indian-Vietnam Solidarity Committee.

- ***October 30, 2018:*** 'Information Manipulation: A Challenge for our Democracies' by Director, Institute for Strategic Studies (IRSEM).

- ***November 28, 2018:*** Chief of the Army Staff, delivered the 9th Annual Y. B. Chavan Memorial Lecture. The title of his presentation was "Addressing the Challenges of Hybrid Conflict in the 21st Century".

- ***February 12, 2019:*** Assistant Professor at the Faculty of International relations, Asia University, Tokyo, shared his perspective on 'Japan's Nuclear Disarmament and Non-proliferation Policy.'

- ***February 15, 2019:*** Chairman of National Security Advisory Board delivered lecture on 'Restructuring India's National Security Apparatus'.

(e) ***Track II Bilateral Interaction:*** The Track-II/Bilateral interaction undertaken by the Institute included:

- ***May 16, 2018:*** Interaction with Diplomatic Academy Vietnam (DAV), Vietnam on 'Strategic Issues'.

- ***June 11, 2018:*** Interaction on 'India-China relations in the post-Wuhan meeting, new regional security dimension and economic cooperation' with China Institute for Contemporary International Relations (CICIR), Beijing.

(f) ***Roundtable Discussions/ Book Discussions:*** The institute organized several round table discussions during the year, including:

- ***April 3, 2018:*** 'United States Policy in Indo-Pacific, China's Belt and Road Initiative and India-Taiwan Cooperation'.
- ***April 11, 2018:*** 'India's Regional and Global role and Israel's Engagement in the West Asia and South Asian Region'.
- ***April 27-28, 2018:*** 'Prime Minister meeting with Chinese President in Wuhan'.
- ***May 11, 2018:*** 'The Nuclear Policy of India and strengthening it in the Future'.
- ***May 16, 2018:*** 'Role of Nigeria on African Security issue and Defence cooperation with India'.
- ***May 22, 2018:*** 'India-Uzbekistan relations in Economic and Cultural Relations'.
- ***June 14, 2018:*** 'Current Situation in Kashmir and the Future Prospects'.
- ***June 26, 2018:*** 'UK Defence Procurement Organisations Evolution'.
- ***July 6, 2018:*** 'New Afghan Peace Initiatives: Can the Domestic and Regional Dimensions be Synchronized?'
- ***July 18, 2018:*** 'Pakistan National Assembly Elections 2018: Issues and Challenges'.
- ***August 13, 2018:*** 'Development in Maldives on upcoming Presidential Elections in September 2018'.
- ***August 17, 2018:*** 'Post Elections Pakistan: Emerging Political Trends and Implications'.
- ***September 27, 2018:*** 'India-Uzbekistan bilateral relations'.
- ***October 31, 2018:*** 'Contemporary Maritime Scene in the Indian Ocean and Sri Lanka's Perceptions'.
- ***November 12, 2018:*** 'India and Republic of Korea in Asia and Beyond.'
- ***December 4, 2018:*** 'US-India, India-China, India-Pakistan, India-Israel and India-Iran Relations'
- ***December 17, 2018:*** 'China Belt and Road Initiative, Indo-Pacific, India Act East Policy and India-Korean Relations.'
- ***January 8, 2019:*** 'India Vietnam Relations'
- ***January 24, 2019:*** 'Globally Assertive China: Challenges for India, including for its Tibet policy'.
- ***January 31, 2019:*** 'Australia-India Relations.'

- ***February 6, 2019:*** 'Security Situation in South Asia, China and other Regional Security issues.'

- ***February 14, 2019:*** 'In Their Own Words: Understanding Lashkar-e-Tayyaba'

- ***March 8, 2019:*** 'States of Emergence, States of Knowledge: A Comparative Sociology of International Relations in China and India'

- ***March 13, 2019:*** 'India and US relations and the evolving strategic competition with China'

- ***March 19, 2019:*** 'India's Eastward Engagement: From Antiquity to Act East Policy'

(g) ***Special Interactions:*** Following special interaction undertaken by the Institute included:

- ***May 9, 2018:*** With China Institute for Strategic Studies (CIISS) on 'India-China Relations and Regional Security'.

- ***June 19, 2018:*** With Ministry of Defence, Japan on 'India-Japan Security Cooperation and Regional Security Issues'.

- ***August 14, 2018:*** With Tanzania Centre for Foreign Relations (CFR).

- ***October 24, 2018:*** With Stimson Centre, Washington, D.C. on 'India-China Relations, Security Developments in South Asia and Indo-Pacific'.

- ***October 24, 2018:*** With British Foreign Office, London on 'South Asian Regional Developments'.

(h) ***Seminars (Scholars/Visiting Fellows):*** The following seminars (Scholars/Visiting Fellows) have been organized by the Institute:

- ***January 17, 2019:*** Abhay K. Singh and Shruti Pandalai presented a joint paper on 'Deconstructing the Indo-Pacific: Implications for India and the Region'.

(i) ***Training/Orientation Programmes:*** Following training programmes have been organized by the Institute:

- ***April 23-27, 2018:*** 'Strategic Orientation Module for National Technical Research Organisation (NTRO)'.

- ***June 18-22, 2018:*** 'Defence and Security Module Training for DIG, Border Security'.

- ***September 24 – October 5, 2018:*** 'Defence and Security Module Level-I orientation programme for BSF Commandants'.

- ***October 15-26, 2018:*** 'Defence Management Course for Ordnance Factories Board Officers (OFB)'.

- ***November 26-30, 2018:*** Capsule Course on International Relations for National Technical Research Organisation (NTRO).

- ***January 28 - February 8, 2019:*** Orientation programme for Indian Air Force Officers.

- ***March 22, 2019:*** MoD-Industry Meeting on Defence Offsets.

MOUNTAINEERING INSTITUTES

15.9 The Ministry of Defence jointly with the concerned State Governments administers four Mountaineering Institutes, namely (i) Himalayan Mountaineering Institute (HMI), Darjeeling in West Bengal; (ii) Nehru Institute of Mountaineering (NIM), Uttarkashi in Uttarakhand; (iii) Jawahar Institute of Mountaineering & Winter Sports (JIM & WS), Pahalgam in J&K and (iv) National Institute of Mountaineering and Allied Sports (NIMAS), Dirang in Arunachal Pradesh.

These Institutes are being run as Registered Societies and have been conferred the status of autonomous bodies. The institute are governed by separate Executive Councils. Raksha Mantri is President, the Chief Minister of the respective State acts as Vice-President of Executive Councils. Other members elected by the General Body of each Institute, nominees from amongst donors and/ or persons who are likely to promote the cause of the mountaineering and representatives of Central and State Governments.

15.10 These Institutes provide an impetus to mountaineering as a sport, give boost to mountaineering discipline and inculcate the spirit of adventure in youth. The broad objectives of the Mountaineering Institutes are:

(a) to impart theoretical knowledge and practical training in mountaineering and rock climbing techniques;

(b) to awaken interest in and love for mountains and exploration among the youth;

(c) to encourage and provide training in Winter Sports; and

(d) to generate a sense of preservation of environment and ecology in the Himalayan region through nature workshops.

15.11 These Institutes conduct courses in the Basic and Advanced Mountaineering, Method of Instruction (MOI), Advance course, Search & Rescue (S&R) and Special Course. Trainees to these courses come from all parts of the country and also comprise personnel from Army, Air Force, Navy, Indo-Tibetan Border Police (ITBP), Border Security Force (BSF) and National Cadet Corps (NCC). Foreigners are also permitted to join these courses. The syllabi, duration, grading, age limit of participant and other details for admission to courses are available on the website of these Institutes.

15.12 The courses being conducted are almost uniform at all the Institutes. The regular courses and special conducted by the Institutes and number of trainees participated in these courses from April 2018 to December 2017 are given in **Table No. 15.1**.

Table No. 15.1

Institute	Basic Course		Advanced Course		Adventure Course		MOI Course		S&R Course		Special Courses	
	No. of Courses	No. of Trainees	No. of Courses	No. of Trainees	No. of Courses	No. of Trainees	No. of Courses	No. of Trainees	No. of Courses	No. of Trainees	No. of Courses	No. of Trainees
HMI	07	533	03	146	06	256	02	32	-	-	24	658
NIM	05	436	03	126	05	258	01	34	01	67	16	730
JIM & WS	09	520	03	122	03	141	01	24	-	-	10	294
NIMAS	16	391	05	64	13	476	01	05	01	08	10	161

15.13 Mount Everest expedition was conducted by NIMAS in the year 2018. Total eight climbers including Director of the Institute from NIMAS scaled the highest peak of the world without a single casualty or cold injury.

CEREMONIALS, HONOURS AND AWARDS

15.14 The responsibility for organising National functions like the Republic Day Parade, Beating the Retreat Ceremony, Martyr's Day and the Independence Day rests with Ministry of Defence. The Ministry also organises the Defence Investiture Ceremonies for presentation of Gallantry and Distinguished Service Awards at Rashtrapati Bhawan in association with the President's Secretariat. The Ceremonial functions organised during 2018-2019 are detailed in the following paragraphs.

15.15 ***Independence Day Flag Hoisting Ceremony:*** The celebration of the Independence Day began with singing of patriotic songs in different Indian languages by the school children's choir at Red Fort. The three Services and Delhi Police presented the Guard of Honour to the Prime Minister. Thereafter, the Prime Minister unfurled the National Flag on the Ramparts of the Red Fort to the accompaniment of the National Anthem played by the Services Band. Twenty one gun salute was presented on the occasion. After the Prime Minister's address to the nation, the ceremony concluded with the singing of National Anthem by school children and the NCC cadets followed by release of balloons. Later during the day, the President laid a wreath at the Amar Jawan Jyoti at India Gate to pay homage to those who sacrificed their lives for the freedom of the motherland.

15.16 The Gallantry Awards announced on the eve of the Independence Day-2018 are given in **Table No. 15.2**.

Table No. 15.2

Award	Number of Awards	Posthumous
Kirti Chakra	01	01
Shaurya Chakra	20	03
Sena Medal (G) (including bar to Sena Medal)	96	08
Nao Sena Medal (G)	11	-
Vayu Sena Medal (G)	03	-

15.17 ***Vijay Diwas:*** Vijay Diwas was celebrated on December 16, 2018. On the occasion, the Raksha Mantri laid a wreath at the Amar Jawan Jyoti at India Gate.

15.18 ***Amar Jawan Jyoti Ceremony, 2019:*** The Prime Minister laid a wreath at the Amar Jawan Jyoti at India Gate in the morning of January 26, 2019. A two minute silence was observed for paying homage to those who laid down their lives in safeguarding the integrity of the nation.

15.19 ***Republic Day Parade, 2019:*** The unfurling of the National Flag at Rajpath marked the beginning of Republic Day Parade. The President's Body Guards presented the National Salute followed by the National Anthem played by the Service Bands and a 21 gun salute. The President of South Africa was the Chief Guest on the occasion.

15.20 In addition, various mechanised columns, marching contingents and bands of the three services, DRDO, Para Military Forces, Delhi Police, NCC, NSS etc. were part of the parade.

15.21 Twenty Six children were conferred with Pradhan Mantri Rashtriya Bal Puraskar. Award winning children, seated in decorated Army Jeeps, participated in the Parade. INA veterans were also part of the Parade this year. Tableaux of States, Central Ministries/ Departments

and cultural items presented by school children were the other attractions of the parade. 22 tableaux and 4 school children items were part of the parade. This year, in view of commemoration of 150th year of birth anniversary of Mahatma Gandhi, overarching theme of tableaux and school children items was having 'Gandhi' connect. The parade concluded with a motorcycle display by Indian Army-Signals-Dare Devils followed by an impressive Fly Past by Indian Air Force.

15.22 The Gallantry and distinguished service awards announced on the Republic Day, 2019 are given in **Table No. 15.3.**

Table No. 15.3

Name of the award	Total	Posthumous
Gallantry Awards		
Ashok Chakra	01	01
Kirti Chakra	04	03
Shaurya Chakra	11	01
Bar to Sena Medal/Nao Sena Medal/Vayu Sena Medal (Gallantry)	06	-
Sena Medal/Nao Sena Medal/Vayu Sena Medal (Gallantry)	112	08
Distinguished Awards		
Param Vishisht Seva Medal	28	-
Uttam Yudh Seva Medal	03	-
Ati Vishisht Seva Medal	51	-
Bar to Yudh Seva Medal	01	-
Yudh Seva Medal	09	-
Bar to Sena Medal/ Nao Sena Medal/Vayu Sena Medal (Devotion to duty)	05	-
Sena Medal/Nao Sena Medal/Vayu Sena Medal (Devotion to duty)	58	
Bar to Vishisht Seva Medal	02	-
Vishisht Seva Medal	120	-

15.23 ***Beating the Retreat Ceremony, 2019:*** 'Beating Retreat' is a centuries old military tradition practised by the troops at the time of disengaging from battle at sunset. The Beating the Retreat Ceremony denotes departure of the troops assembled at Delhi for participating in the Republic Day Celebrations. The ceremony was organised at Vijay Chowk on January 29, 2019, which brought down the curtain on the Republic Day festivities. Bands of the three Services along with State and Central Armed Police Force (CAPF) Band participated in this Ceremony. The conclusion of the ceremony coincided with illumination of the Rashtrapati Bhawan, North Block, South Block, Parliament House and India Gate.

15.24 ***Martyrs' Day Ceremony, 2019:*** On January 30, 2019, the President laid a wreath at Mahatma Gandhi's samadhi at Rajghat. The Vice President, the Prime Minister, the Raksha Mantri, the Raksha Rajya Mantri and other dignitaries also paid floral tributes. This was followed by observance of two minutes' silence at 1100 hours to pay homage to those who sacrificed their lives in India's struggle for freedom.

15.25 ***National War Memorial:*** On February 25, 2019, National War Memorial constructed opposite India Gate to pay homage to all the Martyrs of Armed Forces of India who have made supreme sacrifices in various conflicts/operations including Humanitarian Assistance operations, was dedicated to the Nation by the Prime Minister.

OFFFICIAL LANGUAGE DIVISION

15.26 The Official Language Division is functioning in the Ministry of Defence for implementation of the official language policy of the Union Government. This Division provides assistance and guidance to the officers and employees of the Ministry of Defence (Secretariat), the three Services Headquarters, all Inter-Service Organizations and Defence Undertakings for proper implementation of the provisions of the

Official Language Act and rules made thereunder and the directions/ orders issued by the nodal Department viz. Department of Official Language, Ministry of Home Affairs in this regard from time to time. There are two separate Hindi Advisory Committees constituted under the chairmanship of Raksha Mantri in the Ministry to advise the Ministry on matters relating to the progressive use of Hindi and official purposes. The work relating to official language implementation comprises achieving of targets of Annual Programme prescribed by the Department of Official Language every year for the progressive use of Hindi in official work, imparting training of Hindi Language, Hindi typing and Hindi Stenography to the officers and staff working in the Ministry and organizing Hindi workshops for the staff to enable them to work in Hindi without any hesitation. The work relating to monitoring includes carrying out official language inspections of subordinate offices, defence undertakings and sections of the Ministry, organizing quarterly meetings of both the Official Language Implementation Committees (OLICs) of the Ministry, taking part in the meetings of OLICs of the three Services Headquarters and Inter-Service Organizations located at New Delhi by senior officers of the Division as representative of the Ministry and reviewing the quarterly progress reports received from the above offices for taking remedial measures.

15.27 ***Annual Programme:*** Annual Programme for the year 2018-19 issued by the Department of Official Language was circulated to all defence organizations for achieving targets laid down therein. Emphasis is being laid on enhancing the original correspondence in Hindi, issuing all communications falling under Section 3(3) of Official Language Act in bilingual form, conducting Hindi workshops regularly and getting the officers/ employees trained in Hindi under the Hindi Teaching Scheme. In the quarterly meetings of the departmental OLICs, progress made in this regard is being reviewed regularly.

15.28 ***Translation Work:*** Substantial materials for translation received from various offices and sections of the Ministry were disposed of during the year which included MP/ VIP references, communications issued from Raksha Mantri/ Raksha Rajya Mantri offices, Cabinet Notes, CAG audit paras, documents submitted to Standing Committee on Defence and Consultative Committee, Annual Report of the Ministry, Parliament Questions and Agreements etc.

15.29 ***Meeting of Hindi Advisory Committees:*** There are two Hindi Advisory Committee in the Ministry, one for the Department of Defence, Department of Ex-Servicemen Welfare and Department of Research and Development and other for the Department of Production. The tenure of both Committees has expired and process of reconstitution is in progress.

15.30 ***Hindi Pakhwara:*** Hindi 'Pakhwara' (fortnight) was held in the Ministry from September 14 to 28, 2018 for encouraging the officers/ employees to use Hindi in their day-to-day official work. A number of competitions were organized during the period, which included Hindi noting and drafting, Hindi typing, Hindi stenography and essay writing competitions etc. A large number of officers/ employees participated in the above competitions.

15.31 ***Inspections of Parliamentary Committee on Official Language:*** During the year, the Committee of Parliament on Official Language did several inspections of offices of various defence organizations and subordinate offices of the Ministry of Defence. The Ministry assisted them by reviewing their questionnaires and suggesting amendments wherever required. Assurances given by the offices at the time of their inspection are being fulfilled as per directions and requirements of the Committee.

WELFARE OF PERSONS WITH DISABILITIES

15.32 The representation of Persons With Disabilities (PWD) in Group 'A', 'B' and 'C' posts in Ministry of Defence (Department of Defence) and in attached

and Subordinate Offices under Department of Defence Production is presented in **Table No. 15.4** and **Table No. 15.5** respectively.

Table No. 15.4

Annual Statement showing the representation of the Persons With Disabilities in services (As on January 1, 2018)

Representation of Visually handicapped (VH)/ Hearing Handicapped (HH)/ Orthopedically Handicapped (OH) (As on 1.1.2018)					Number of Appointments made during the calendar year 2017											
					By Direct Recruitment				By Promotion				By Deputation			
Groups	Total Employees	VH	HH	OH	Total	VH	HH	OH	Total	VH	HH	OH	Total	VH	HH	OH
A	4226	1	4	24	157	0	0	5	59	0	0	0	9	-	-	-
B	29115	31	50	307	449	7	6	8	1244	9	2	12	0	-	-	-
C (Excluding Safai Karmchari)	206690	520	673	1596	5768	62	57	67	4298	13	12	36	180	-	-	-
C (Safai Karamchari)	11121	234	181	538	402	13	6	5	20	0	0	0	82	-	-	-
Total	**251152**	**786**	**908**	**2465**	**6776**	**82**	**69**	**85**	**5621**	**22**	**14**	**48**	**271**	**-**	**-**	**-**

Table No. 15.5

Annual Statement showing the representation of the Persons With Disabilities in service in Attached and Subordinate Offices under Department of Defence Production

(As on 1st January 2019)

Groups	Representation of Visually Handicapped (VH)/ Hearing Handicapped (HH)/ Orthopedically Handicapped (OH) (As on 1.1.2010)				Number of Appointments made during the calendar year 2018											
					By Direct Recruitment				By Promotion				By Deputation			
	Total Employees	VH	HH	OH	Total	VH	HH	OH	Total	VH	HH	OH	Total	VH	HH	OH
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
A	2413	1	6	33	49	0	0	0	41	0	0	0	1	0	0	0
B	29194	23	43	304	233	2	1	3	2705	0	0	4	0	0	0	0
C (Excluding Safai Karmchari)	57962	158	217	1150	801	21	13	29	8366	5	11	37	2	0	0	0
C (Safai Karmchari)	85	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Total	**89654**	**182**	**266**	**1487**	**1084**	**23**	**14**	**32**	**11112**	**5**	**11**	**41**	**3**	**0**	**0**	**0**

15.33 ***Department of Defence Production:*** All Defence Public Sector Undertakings (DPSUs) under the Ministry of Defence have been following the provisions of the Persons With Disabilities (Equal opportunities, Protection of Rights and Full participation) Act 1995 in order to enable persons with disabilities to avail the benefits of reservation. Several concessions and relaxations, in addition to those prescribed by the Governments, are also extended to persons with disabilities.

15.34 ***Defence Research and Development Organisation:*** DRDO is committed to implement the Government policies and instructions relating to the welfare of Persons With Disabilities. The 3 percent reservation in the recruitment and promotion is being provided to the persons with disabilities as per the Government instructions.

Department of Ex-Servicemen Welfare

15.35 ***Special Medical Care for disabled Soldiers:*** A number of soldiers become disabled during action or due to accident and other causes and are invalidated out from service. These Ex-Servicemen (ESM) are provided special medical care and training to become self-reliant. The care and rehabilitation of such personnel are undertaken in specialized institutions, viz. Paraplegic Rehabilitation Centres at Mohali and Kirkee which are supported financially by Kendriya Sainik Board (KSB) Secretariat out of Armed Forces Flag Day Fund.

15.36 ***Prosthesis Centres:*** 53 Prosthesis Centres of Endolite and Ottobock Companies across 40 Cities have been approved on November 3, 2016 for empanelment under Ex-Servicemen Contributory Health Scheme to provide latest prosthesis treatment to disabled ESMs.

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CHAPTER **16**

ACTIVITIES OF VIGILANCE UNITS

16 ACTIVITIES OF VIGILANCE UNITS

16.1 The Vigilance Division in the Ministry of Defence has been entrusted with the task of dealing with complaints regarding corrupt practices, misconduct and irregularities in respect of employees of the Ministry of Defence and various units under it. It serves as a nodal point for interaction on behalf of the Ministry of Defence with the Central Bureau of Investigation (CBI), Central Vigilance Commission (CVC) etc. on vigilance related issues and complaints. The Vigilance Division, inter-alia, initiates measures with a view to combating corruption and reviewing procedures.

16.2 For administrative convenience, Vigilance Wing of the Department of Defence also looks after the vigilance work of Department of Ex-Servicemen Welfare (DESW) and Department of Defence Research and Development (DRDO). However, the Department of Defence Production (DDP) has a separate Vigilance Wing.

16.3 In accordance with the directives of the Central Vigilance Commission, all Departments/ Organizations/Units viz. Navy, Air Force, DRDO, DGBR, E-in-C's Branch, DGDE, CAO & DGAFMS etc. under Ministry of Defence, observed Vigilance Awareness Week from October 29 to November 3, 2018 with the theme "Eradicate Corruption – Build New India" and wide range of activities like Integrity Pledge, workshops, distribution of pamphlets, display of banners/posters, debates, lectures, essay/poster making competitions, quiz programmes etc. were organized to spread vigilance awareness among their staff.

DEPARTMENT OF DEFENCE

16.4 In keeping with the need to ensure transparency, fair play, accountability and integrity, efforts are being made continuously in the Ministry of Defence for sensitization of all the stakeholders against corrupt practices.

16.5 The Chief Vigilance Officer (CVO) maintains liaison with all concerned offices to ensure timely completion of various reports/ cases/ tasks relating to vigilance work.

16.6 The Ministry keeps a close watch over vigilance cases pending at different stages including cases pending in the concerned Wings/Divisions so that such cases are disposed of in a time bound manner. The status of pendency is monitored by the CVO at regular intervals. Regular meetings are held by CVO with the officers of vigilance cells of various organizations under Department of Defence, DRDO etc. to monitor the pendency. The Ministry has also appointed two panels of Independent External Monitors (IEMs) to look into the complaints of vendors on tenders/ contracts issued by the different organizations of the Ministry. These include capital and revenue procurements by Ministry of Defence and projects under Military Engineering Service (MES), Directorate General of Border Roads (DGBR), DRDO (Works) and unclassified projects of Directorate General Naval Projects.

16.7 In order to have efficient disposal of disciplinary cases in the Ministry, a separate Chief Vigilance Officer has been appointed, specifically to handle cases of MES and BRO.

16.8 During this period a total of 23 complaints (13 from CVC + 10 Non CVC) and 1 Chief Technical Examiner (CTE) case having 24 CTE cases including 5 ongoing cases having 159 paras were processed. Out of these, 123 paras were settled in consultation with CVC/CTE. Clarifications have been sought from the concerned organizations for settling the remaining paras. 7 complaints were closed in consultation with CVC/CVO. 33 cases for Sanctions for prosecution were processed out of which 7 sanctions were conveyed and 26 were denied. Total 17 disciplinary cases of CVC jurisdiction were finalized during the year, out of which 'Major Penalty' was imposed in 11 cases, 'Minor Penalty' was imposed in 1 case, in 3 cases, the charged officers were exonerated and in remaining 2 cases, charges were dropped.

DEPARTMENT OF DEFENCE PRODUCTION

16.9 ***Ordnance Factory Board (OFB)***

(a) ***Preventive Vigilance:*** Major thrust has been on adoption of measures for improvement of systems and procedures. Taking advantage of leveraging of technology, OFB/ Vigilance is continuously analyzing online data received from the factories countrywide and has started red-flagging areas of concern such as processing of Tenders and Source development, acceptance of material and clearance of Material Inward Slip, bill processing time, timely Payment to Vendors etc. 163 Preventive checks and 361 APR checks have been done during the year 2018-19. Rotational Transfer Policy has been fully implemented.

(b) ***Surveillance and Detection:*** 7 CTC Type inspections have been conducted and anomalies detected in purchase of medicines at OF Hospitals during the year.

(c) ***System Improvements:*** System improvements were suggested to management on a series of findings from investigations in procurement of Plant & Machineries.

(d) ***Training:*** Workshop on Preventive Vigilance were held by Zonal Vigilance Directors on selected topics like specifications framing, estimate preparation and tendering procedure. Pre-bid Conference and Techno-Commercial Evaluation were taken up in the workshop in December, 2018.

(e) ***Vigilance Awareness Week:*** Interview of CVO/ OFB in connection with Vigilance Awareness Week 2018 was aired on Doordarshan, Kolkata. Vigilance workshops by Deputy Secretary (Vig)/DDP organized by OFB/Vigilance on vigilance awareness in different zones of OFB/ Vigilance during the year. Interactive meeting on vigilance awareness in factories were conducted by CVO/OFB.

16.10 ***Garden Reach Shipbuilders & Engineers Limited (GRSE)***

(a) ***Preventive Vigilance:*** Following preventive measures were implemented:

(i) Implementation of Bill Tracking System for monitoring of Bill Payments to vendors.

(ii) Implementation of Standard Operating procedures for pre indenting for procurement of Equipment / machineries/tools/systems through Capital Budget.

(iii) Surprise inspections and verification of files were carried out.

(b) ***Rotational transfer:*** Sensitive posts were identified & action initiated in a phased manner for rotation of officers.

(c) ***System Improvements:*** Suggestions for system improvements have been made to the management on various issues.

(d) ***Vigilance Awareness Week:*** Following activities were under-taken during Vigilance Awareness Week – (i) Activities for public in general through display of banners at prominent places with the message to participate in the fight against corruption and to log in CVC website for e-integrity pledge. (ii) Competition and Integrity e-Pledge taking in school and college students (iii) Sending bulk e-mail to vendors to participate in the fight against corruption (iv) Display of Banners and Anti-Corruption themes in various Units and taking of Integrity Pledge by employees, conducting workshops and sensitizing programmes for employees (v) Sri Jayanta Kar, Director (Vigilance) of OFB presented his valuable comments in the seminar organised on October 30, 2018.

16.11 ***Hindustan Shipyard Limited (HSL)***

(a) ***Preventive Vigilance:*** Eleven surprise checks were conducted by the vigilance department at Canteen, Welding department, General Stores, Bond stores, Finance department, Disposal yard, periodic inspection of EMDs, DDSR Purchase dept., diesel storage tank and housing estate. Four structured meetings between CVO & CMD were held during the year.

(b) ***CTE Type Inspections:*** Three CTE type inspections were conducted and reports forwarded to management suggesting system improvements on – repair and renovation of New A,B,C type quarters in HSL Colony, replacement of firefighting sea water pipeline & Oxygen pipeline in SRC & wet Basin and award & execution of purchase order-Modular Accommodation for Normal Refit of INS Kesari etc.

(c) ***New Initiatives:*** Various files were randomly verified prior to price bid opening i.e. Renewal of Dredge pipes on DCI Dredger XV, rehabilitation of N type quarters in HSL colony, upkeep and maintenance works in HSL Colony. Removal/ repairs/ installation and trials of refrigeration plant of EKM class submarine, supply of PUF slabs required for MFV Blue Marlin, renovation of works to J&C (OAD) work shop, supply and filling of PUF of shapes in cubes / cuboids in Buoyant chambers inside the vessel BPTII.

(d) ***Vigilance awareness week:*** Vigilance awareness week was observed from October 29 to November 3, 2018 and the Integrity Pledge was administered to the employees. Competitions on the theme – "Eradicate Corruption-Build A New India, Essay writing, Slogan Writing, Online Quiz etc. Painting and Elocution competitions were held for Schools/College Students and students administered Integrity Pledge. A vendor meet was conducted at Commercial department and mass Integrity Pledge was administered by the vendors. A seminar was conducted on the theme "Eradicate Corruption-Build A New India" and Shri. RA Chandrasekhar, IPS, Joint Director, SIB, Vijayawada delivered a key note lecture on the theme.

16.12 ***Mazagaon Dock Shipbuilders Limited (MDL)***

(a) ***Preventive Vigilance:*** Six programs for vigilance awareness were held wherein 109 executives & 80 Non executives officials participated. 10 Spot checks/Inspections were also conducted as a part of preventive vigilance.

(b) ***CTE Type Examinations:*** Two CTE type examinations were carried out by the MDL/ Vigilance during the year and overall systemic improvements were suggested.

(c) ***Vigilance Awareness Week:*** Integrity pledge was administered to MDL employees. Vigilance in-house journal 'SUCHARITA" Vol. XXI was released. Essay/Debate competition was organised in 3 colleges & 3 schools. Gram Sabha was held at Village Anandwan, District-Chandrapur (Maharashtra). An eminent speaker Shri Prateek Goswami, IRSS, Chief Materials Manager, Central Railway, Mumbai, delivered a talk on Procurement. Vendors meet was also organized.

(d) ***Rotational Transfers Policy:*** 44 executives/ officials holding sensitive posts for more than three years were transferred under Rotational Transfers Policy.

(e) ***Structured Meeting between CMD & CVO:*** 2 Structured Meeting between CMD & CVO were held during the year.

16.13 ***Hindustan Aeronautics Limited (HAL)***

(a) ***Preventive Vigilance:*** Brain-storming session on prevailing Supply Chain Management of the Company was held and extensive study of the same was made by important functionaries/ stake holders like Material Management, Finance, Human Resource, Service Contracts, Work Contracts etc, and suggestions for improving present system were submitted to the Management. As a result, 16 amendments in Purchase Manual were issued which will improve the procurement process. 39 sessions were conducted to sensitize HAL employees about vigilance matters and workshops were held across the divisions on Vigilance related topics for curbing corruption.

(b) ***Publication:*** Two volumes of in-house Vigilance Magazine "Marg Darshan" were published during the year. Articles from eminent personalities and Executives of the Organization on the theme "My Vision - Corruption Free India" were published.

(c) ***System Improvements:*** Based on the recommendations of HAL/Vigilance, 19 system improvements have been issued by the Management for in the areas of Civil Contracts, Material held with subcontractors, Finalization of RRs, Check on RTGS payments, Land Matters etc.

(d) ***Vigilance Awareness Week:*** Vigilance Awareness Week was conducted laying impetus on the theme "Public Participation in Promoting Integrity and Eradicating Corruption". Apart from conducting in-house events, stress was also laid on reaching the public through Gram Sabhas, Walkathon, competitions for students in schools & colleges, vendors, other public places, etc. to spread awareness about role and responsibility of public in eradication of corruption. Apart from the employees of HAL, 4,925 persons of public in general also took the Integrity pledge.

16.14 ***Mishra Dhatu Nigam Limited (MIDHANI)***

(a) ***Preventive Vigilance:*** As a part of preventive vigilance – High value procurement files and low tender response files have been scrutinised. Nine Investigation reports were submitted by HAL/Vigilance on procurement and recruitment which resulted in issuance of three system improvements. Regular Inspections and surprise checks have been carried out in all the sensitive areas. All tenders above ₹ 40 lakh have been brought under the purview of Integrity Pact.

(b) ***Vigilance Awareness Week:*** Vigilance Awareness Week was focussing on CVC theme

of "Eradicate Corruption- Build a New India" and students of schools and colleges were involved. Sixth issue of in-house vigilance magazine "JAGRUTI" was published and released.

(c) ***System Improvements:*** Ten systemic improvements/ advisories were issued to the Management which resulted in following actions taken by management: (i) Introduction of 'Online system for issuing Vigilance Clearance' (ii) Online system for submission of Annual Property Returns (iii) Amendment in Whistle Blower Policy – 2015 (iv) Job Rotation Policy for Executives working in sensitive posts has been framed and approved (v) Improvement in e-Procurement percentage in exempted categories (vi) A new clause has been incorporated in all Open tenders to avoid submission of quotations by group companies.

16.15 ***Goa Shipyard Limited (GSL)***

(a) ***Preventive Vigilance:*** The thrust during the year was on Preventive Vigilance. A number of regular inspections, surprise checks and CTE Type inspections were carried out in various areas with the aim of intervening in time to preclude lapses / violations of instructions and guidelines of CVC if any. Systemic improvements so as to streamline systems and procedures were also taken up at periodic intervals. Emphasis was laid on ensuring transparency through effective use of website, e-tendering & on-line Vendor registration. Certain class of items have been earmarked for purchase through GEM Portal. All contracts/order above threshold value of ₹ 2 crore are covered under integrity pact and are being strictly monitored by IEM on a quarterly basis.

(b) ***Training:*** Orientation programmes, lecture and Presentations on Vigilance awareness matters is being given to newly inducted Executives, Management trainees, supervisors/Ministerial staff as well as CISF Personnel.

(c) ***Vigilance Awareness Week:*** Vigilance Awareness Week was observed from October 29 to November 3, 2018, the theme being "Eradicate Corruption-Build a New India". More than 250 Personnel took e-pledge. Apart from conducting In-house events, stress was also laid on reaching out to the students in schools and colleges with special emphasis on covering rural areas within the State of GOA. Vendor Grievance Redressal Camp, for as well as Vendor Development Program for increasing Vendor base was held during the week. Screening of CVC documentaries and Sensitization Programs on corruption and its evil effects, were held for GSL employees and newly inducted Central Industrial Security Force (CISF) personnel. A talk followed by an interactive session Special Secretary (Home), Government of Goa, was held during the week.

(d) ***System Improvements:*** Filing online Annual Property Return by Executive and supervisors is followed by scrutiny and surprise inspection. Vigilance status of Board level executives and senior officials are updated on SOLVE portal in line with Govt. directives on the subject. Thumb based electronic attendance recording system has been made mandatory in all tenders for all labour oriented contracts. Material Tracking System for materials moved out from Factory premises has been made available to maintain Vigil on the subject.

16.16 ***Bharat Earth Movers Limited (BEML)***

(a) ***Preventive Vigilance:*** As a part of Preventive Vigilance, all tenders above ₹ 1 crore have been brought under the purview of Integrity Pact. 345 surprise checks, 516 Periodical checks. 531

Purchase Order checks, 685 reimbursement claims, 237 Annual Property Return (APR) checks and 7 CTE type inspections, 8 System Studies have been carried out during the year. Additional CCTV Cameras at Sensitive areas and Display of Vigilance Boards at Prominent Locations were positioned across all BEML Complexes/Divisions.

(b) ***System Improvements:*** The following salient System Improvements and Best Practices were recommended to Management - (i) Linking of material master with the Vendor Master on Supplier Relationship Management (SRM). SRM Platform for automatic selection of vendors while creating Tender enquiry. (iii) SRM Version 7 to be linked to SAP for Purchase Requisition. (iv) Receipt of Tender fee & EMD through SRM and Auto return of EMD through SRM. (v) Adoptation of e-Procurement for Defence items.(vi) Appointment of a full-fledged Estate Officer with adequate staffs dedicated to Supervise & Manage all Land/Building facilities of the Company. (vii) Vendor Payment Tracking enabled on SRM Portal through which vendors can track status of payment for the supplies/ services made online. (viii) SAP has to be customized for Auto-deduction of LD (Liquidity Damages) and manual entry of LD amount should be stopped

(c) ***Training:*** Vigilance Manual was published during August 2017. Amendments have been made in Vigilance Manual regarding Vigilance Record Retention and Vigilance Clearance in BEML, same has been updated on Vigilance Portal of BEML Website during 2018. Conducted Induction Training Program on Vigilance Awareness for new incumbents- Management trainees (Finance) in BEML. Also, training classes were conducted regarding Vigilance Awareness among Officers & Employees

(d) ***Rotational Policy:*** Keeping in view the changing business scenario, after Risk Assessment Exercise, the Sensitive Areas list was reviewed and fresh areas were notified as Sensitive to effect Job Rotation Policy.

(e) ***Vigilance Awareness Week:*** Vigilance Awareness Week was observed with the theme "Eradicate Corruption- Build a New India". Integrity Pledge was administered to the Students & Staff at Schools & Colleges. Vendors Meet organised wherein, vendors from all over India were invited. 2 km Walkathon – "Vigithon" was organised. About 300 employees from BEML, HAL, and BEL etc. participated in the Vigithon. Awareness Gram Sabhas were conducted at villages for taking online Integrity Pledge by general Public. At KGF, the student leader of the Integrity Club provided the activities conducted under "Integrity Club".

16.17 ***Bharat Electricals Limited (BEL)***

(a) ***Preventive Vigilance:*** File Lifecycle Management (FLM) on SAP platform has been implemented across all the units. Four Vigilance Officers of BEL received Excellence Award on September 10, 2018 during the VSC-Bengaluru Function. 1309 Regular inspections & 708 Surprise inspections were carried out across nine units of BEL during the year. 1395 POs / Contracts were reviewed. CTE Type Intensive Examination was completed for 57 contracts. Based on the observations made, system improvements have been suggested to management.

(b) ***Rotational Transfer Policy:*** 131 employees due for Job rotation were identified during the year and 100% job rotation has been achieved.

(c) ***Vigilance Training / Seminars:*** 2 day programme on "Contract Law and Contract writing" was

organised. Under the aegis of Vigilance Study Circle -Bengaluru, CII and ICAI, a program on "Nation Building Ideas" was organized at BEL Kalakshetra, Bengaluru.

Eminent speakers from Academia, Public Sector and Private Sector were invited to deliver talks on various topics covering mainly Public Sector, Private Sector, Banking, Government Policies etc. Seminar covered various subjects and in-depth discussions of Micro and Macro Economic aspects, Direct and Indirect Tax aspects, Role of Public, Private & Banking Sectors, Inter linkages in procurements, Business between Public Sector and Private Sector, Effect of Make in India program etc.

(d) ***Vigilance Awareness week:*** During the Vigilance Awareness Week special talks by the eminent speakers were arranged across BEL. e-Pledge was facilitated in BEL-Intranet and Internet apart from taking the e-pledge on CVC website. Outreach programs were conducted at various schools/colleges. Vigithon, Walkathon & Cyclothon events were organized. Grama Sabha was held at Yettaganahalli Village, Bangalore Rural District.

16.18 ***Directorate General of Quality Assurance (DGQA)***

(a) ***Preventive Vigilance:*** As a part of preventive vigilance, surprise checks have been conducted at Units/ Establishments level. In addition a sensitization workshops also organized by this office in field establishments across the country.

(b) ***System Improvement Study:*** Study on System Improvement was ordered on the subjects "Updation of technical documentation by the AHSP" and "Aligning the departmental technical specification with the national/ International specifications" during the year 2018-19 to find out the areas prone to or susceptible to corruption and give suggestions/ recommendations on measures to be adopted to prevent any scope of corruption in DGQA. The study has been carried out by the nominated officers with a host of suggestions/ recommendations to ameliorate the ills in corruption prone areas. The selective recommendations will be circulated within Organization for necessary follow up.

(c) ***Vigilance Awareness Week:*** Vigilance Awareness Week was observed in all Units/ Establishments as well as at HQ/ DGQA Tech Directorates/ Adm Directorates. Slogans, Speeches, Quiz Contest and Various Competitions and Debates aiming at vigilance awareness were organized. Conduct of Workshops/ Sensitization programmes, Distribution of pamphlets/ Banners, etc. were publicize during the event of Vigilance Awareness Week. Prizes were also awarded to the participants. Lectures/Speeches were also delivered by the HOEs covering aspects of honesty, integrity and encouraging employees to support the cause of eradicating corruption.

16.19 ***Directorate General of Aeronautical Quality Assurance (DGAQA)***

(a) ***Preventive Vigilance:*** The Inspection Notes issued by Field Establishments of DGAQA are constantly monitored at HQrs as a proactive and preventive measure. An officer of SAG level at HQ and sufficiently senior level officers at Fes i.e 2nd or 3rd in hierarchy are monitoring vigilance related matters.

(b) ***Rotational Transfer Policy:*** As per CVC instructions, Field Establishments and offices in HQrs were identified as sensitive and the officers holding such postings are rotated every two/three years to avoid developing of vested

interest. MSQAA & SSQAG Hyderabad was also advised to carry out similar exercise at their end.

(c) ***Vigilance Awareness week:*** With a view to inculcate vigilance awareness, banners with appropriate slogans were displayed and in-house talks were organized during the Vigilance Awareness Week celebrated from October 29 to November 3, 2018.

16.20 ***Action Taken by Department of Defence Production:*** In order to enhance the level of transparency in various activities of Defence PSUs and Ordnance Factory Board, Actionable Points were identified and circulated to all the DPSUs and OFB for necessary action which includes Inter Organisation Audit, covering 90% contracts under Integrity Pact, efforts made and results achieved for vendor development, The Proportion of Limited/ Single Tenders to be reduced through, 90% of procurements (by value) through e-Procurement, Rotational transfer of staff holding sensitive posts, Conduct CTE type Inspections by the CVOs, Monitoring of Public Procurement (Preference to make in India) etc. Performance of Defence PSUs and OFB against these parameters is assessed Quarterly in the Department.

16.21 During the Year 2018, the DDP/ Vigilance has undertaken following Vigilance actions in respect of Group 'A' officers of OFB/ DGQA and Board Level officers of DPSUs under the punitive vigilance:

Sl. No.	*Action Taken*	*Number of Officers involved*
(i)	Major Penalty imposed	10
(ii)	Minor Penalty imposed	4
(iii)	Major Penalty Charge Sheet issued	12
(iv)	Minor Penalty Charge Sheet issued	3

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CHAPTER **17**

EMPOWERMENT AND WELFARE OF WOMEN

17 EMPOWERMENT AND WELFARE OF WOMEN

17.1 The role of women has been increasing steadily in the field of national defence. Women are employed in Defence Production Units, Defence Research & Development Laboratories and in the Armed Forces. With the induction of women in various branches of the Armed Forces like flying, logistics and law, a larger role is envisaged for them.

INDIAN ARMY

17.2 ***Women Officers in the Army:*** Women officers have been serving in the Armed Forces for about 80 years and have served with competence and distinction. They were inducted in the Military Nursing Service in 1927 and in the Medical Officers cadre in 1943. In the Armed Forces Medical Services, there are both Permanent and Short Service Commission Officers (SSCOs).

17.3 In 1992, in a significant step to open more branches for employment of women officers, they were granted commission in Army Service Corps (ASO), Army Ordnance Corps (AOC), Army Education Corps (AEC) and Judge Advocate General (JAG) Department. This Short Service Commission was granted only for 5 years initially. The tenure of engagement was further increased to 10 years in August 1996 as also other branches namely Corps of Electrical and Mechanical Engineers (EME), Intelligence Corps (IC) were opened for employment. In 2004, the service tenure was further extended to a total of 14 years. In 2007, Army Air Defence (AAD) and in 2011 Army Aviation were also opened for inducting Women Officers. In 2010, provision of Permanent Commission was made for Women Officers in JAG and AEC. As regards promotions, earlier, Women Officers were eligible for only one promotion, viz. to the rank of Captain on completion of 5 years of reckonable service. However, they are now granted time-scale substantive promotions to the rank of Captain, Major and Lt Col after 2, 6 and 13 years of reckonable service respectively at par with the promotions available to the Permanent Commission Officers. In addition, with a view to ensuring gender equality, the training period of Women Officers in the Army in Short Service Commission has also been increased from 24 weeks to 49 weeks, at per with male Short Service Commissioned Officers.

17.4 Keeping in view the role and responsibility of the Armed Forces in defending the nation and protecting the territorial integrity of the country, the future policy on induction and employment of women in Army has been enunciated in February, 2019 as under:

(i) Women Officers may continue to be inducted as Short Service Commission Officers (SSCOs) in Arms/ Services where they are presently being inducted, with no change in their tenure of Short Service Commission.

(ii) Women officers will be considered for grant of Permanent Commission in the eight Arms/ Services in the Indian Army viz Signals, Engineers, Army Aviation, Army Air Defence, Electronics and Mechanical Engineers (EME), Army Service Corps, Army Ordnance Corps and Intelligence Corps in addition to the existing two streams of Judge Advocate General (JAG) and Army Education Corps (AEC). Thus, women officers will be considered for grant of

Permanent Commission in all the ten streams in which they are currently being commissioned as SSC officers.

(iii) On completion of three years of commissioned service and before completion of four years of commissioned service, they will be required to exercise option for grant of Permanent Commission and their choices for specialization.

(iv) Women SSCOs will be considered for grant of Permanent Commission based on the availability of vacancies and subject to willingness, suitability, performance, medical fitness and competitive merit. On grant of Permanent Commission, these women officers will be employed in various staff appointments only as per their qualification, professional experience, specialization if any and organizational requirement.

17.5 ***Child Care Leave (CCL):*** While earlier LTC could not be availed during Child Care Leave, now with the amendment to the extant provision by the Government of India, Women Officers of Defence Forces can now avail LTC alongwith CCL leave Station/HQs with the permission of leave sanctioning authority and travel abroad on CCL.

INDIAN NAVY

17.6 ***Women Officers:*** Women are being inducted into the Navy as Short Service Commission (SSC) officers in the Executive (Observer, ATC, Law & Logistic), Education Branch and the Naval Architecture of the Engineering Branch. In March 2016, approval of MoD was accorded for induction of women Short Service Commission (SSC) officers as Pilots in Maritime Reconnaissance (MR) stream and in the Naval Armament Inspectorate (NAI) cadre. In 2019, approval has been accorded for induction of women Short Service Commission (SSC) officers in Musician and Sports Specialisation.

17.7 ***Permanent Commission to SSC Officers:*** The Government has introduced grant of Permanent Commission prospectively to the Short Service Commission Officers, for both men and women, of the Executive Branch (Law Cadre), Education Branch and Engineering Branch (Naval Architecture) w.e.f. 2008.

17.8 The Indian Navy is committed to the welfare, well-being and dignity of the women. It is a constant endeavour of Indian Navy to provide maximum support to women employees and women family members in order to maintain high morale and motivation at all times. IN has taken concerted efforts to ensure empowerment of women employees and their active participation in activities/ work at respective units. The following measures have been implemented to ensure women empowerment and safe working environment for women employees:

(a) Creation of positive environment by giving freedom for women at workplace and equal status with men which enables development of women by realising their full potential.

(b) Equal participation/ involvement of women employees in decision making or activities of the unit/ establishment at all levels.

(c) Sensitisation of all employees to acquire equal rights with men and congenial atmosphere at workplace.

(d) Elimination of violence/ all forms of harassment of women employees, whether physical or mental, at workplace.

17.9 ***Vishaka and Nirbhaya Acts:*** "Visakha Guidelines" and "The Sexual Harassment of Women at Workplace (Preventive, Prohibition and Redressal) Act, 2013" have been implemented at IHQ MoD (Navy), all Commands and outlying units. Committees have been constituted at the three Commands to inquire into

complaints of sexual harassment of women employees at workplace. The main aim is to prohibit/ eliminate any sort of harassment/ violence against women employees at workplace. Suitable Women Officers have been nominated as the chairman of Internal Complaint Committee (ICC) cell of all units.

17.10 ***Naval Wives Welfare Association (NWWA):*** In order to encourage building self-confidence amongst women and to boost morale of naval ladies, a large number of activities are organised by naval wives on a voluntary basis. The Naval Wives Welfare Association (NWWA) provides an opportunity to undertake genuine welfare and educational activities through its innumerable welfare programmes. Examples of such activities include running of play schools for children, reaching out to people outside the community, running of schools for special children, care for senior citizens and patients with chronic diseases, rehabilitation of naval widows, helping in resolution of family disharmony through professional counselling and guidance, conduct of vocational training classes for women towards other skill development and economic empowerment. NWWA also provides opportunities to the naval families to develop and showcase their talents in the field of social, cultural and sports activities through vocal and instrumental music, dance, drama, health activities, yoga and organised games and sports.

17.11 ***Navika Sagar Parikrama:*** INSV Tarini returned to India on May 21, 2018, on completion of the first Indian all-women circumnavigation of the globe. This is the first-ever Indian circumnavigation of the globe by an all-women crew. The expedition titled 'Navika Sagar Parikrama', is in consonance with the National policy to empower women to attain their full potential. It also depicted 'Nari Shakti' on the world platform and helped discard the societal attitudes and mindset towards women in India by raising visibility of their participation in challenging environs. Also, the indigenously-built 56-foot sailing vessel, INSV Tarini showcased the 'Make in India' initiative on the International forum. Further, in order to apprise the school children about the experiences of the voyage, the all women crew of INSV Tarini has visited various schools and education institutions across the country since July 2018.

All Women Crew of INSV Tarini

17.12 ***Astitva Samman Award:*** The NWWA was awarded the 4th Women Astitva Samman 2019 on February 15, 2019 at New Delhi. The Astitva Samman award was instituted in 2016 by PHD Chamber of Commerce and Industry in recognition for promoting women empowerment in an organisation, NGO or corporate. PHD Chamber of Commerce and Industry, established in 1905, is a proactive National Apex Chamber working at the grass-root level with strong national and International linkages.

Astitva Samman Award

Welfare Activities

17.13 ***Revised Spouse Co-location Policy:*** It has been the endeavor to post spouses serving in the Armed Forces at the same station so far as feasible, subject to Service exigencies. To outline clear modalities and conditions for spouse co-location, which meet individual aspirations, as also organisational goals, policy on Spouse co-location has been revised and provisions have been aligned with those in the Indian Army, IAF and DoP&T guidelines.

17.14 ***Naval Regimental System (NRS):*** In keeping with the traditional camaraderie and brotherhood that is prevalent in the Defence Services, Naval Regimental System (NRS) was established in January 2011 to institutionalise the support system and provide proactive and extended support to Widows/ Next of Kin (NoK) of deceased sailors. Under this system seven Command Regimental System Officers (CRSOs) and their teams reach out to every family after the demise of a naval colleague, immaterial of whether the individual was in harness or retired and ensure that their welfare and accrual of all entitled dues reach them in time. Regimental State Units (RSUs), which have their footprint on ground, reach out to the widows and educate them on related welfare issues e.g. family pension, I card, canteen cards, ECHS memberships, etc.

17.15 ***Reaching out to Widows and Retired Community:*** To facilitate early resolution of issues impinging on their well being the following have been instituted:

(a) 'Directorate of Ex-Serviceman Affairs Toll Free Help Line', which provides round the clock coverage through its Integrated Voice Recording (IVR) Facility.

(b) 'Commodore Bureau of Sailors (CABS) Toll Free Help Line' to resolve pension related issues.

(c) Dissemination of important issues through IRFC website.

(d) Publication of quarterly e-newsletter covering latest policies/ developmental issue related to welfare of veterans.

(e) Interaction with Directorate of Ex-Serviceman Affairs through e-mails.

17.16 ***Widows' Hostel at Delhi:*** A plot measuring 2050.39 Sqm was acquired by the Navy from DDA for construction of a hostel for widows of naval personnel. Construction of the hostel is completed. It has 34 dwelling units with all amenities including parking. Obtaining of occupancy certificate from MCD is in progress.

17.17 ***International Women's Day:*** To commemorate International Women's Day various events were organised at various units of IN:

(a) NWWA (Tamil Nadu) in association with FICCI (Federation of Indian Chamber of Commerce and Industry) conducted an event onboard IN ship Sumitra on March 9, 2018 to honour the valour of women in uniform on the occasion of International Women's Day.

(b) A day-long workshop was organised for all women employees at Naval Dockyard (Vzg). The programme included talks on women empowerment, women's rights, talks on health issues and social issues delivered by eminent personalities and faculty from respective disciplines. Besides, events such as cultural programme by employees, games, competitions, etc. were also organised for women employees as part of the celebrations.

17.18 ***All Women Expedition to Mt Deo Tibba:*** An all women Naval Mountaineering Expedition to Mt

Deo Tibba was successfully conducted from May 28 to June 10, 2018. Mt Deo Tibba is the second highest peak (6001 M) in the Pir-Panjal range of Himachal Pradesh. The expedition has laid foundation for all women mountaineering team to scale many more challenging peaks in the near future.

All Women Expedition to Mt Deo Tibba

17.19 ***Health Clinic – Ladies:*** Various health clinics were conducted under the aegis of Arogya Wing of NWWA across various IN units throughout the year. The events were aimed to sensitise wives of naval personnel on the merits of positive women's health and to promote optimal health and well-being.

INDIAN AIR FORCE

17.20 ***Induction of Women Pilots in the Fighter Stream:*** The Indian Air Force (IAF) has been at the vanguard of providing greater opportunities to women, and has pioneered the entry of women as officers in the flying and ground duty branches. Since 1993 women are being inducted as Short Service Commissioned officers in all branches and streams of the IAF except the fighter stream. The IAF has recently revised Short Service Commission (SSC) scheme to induct women into the fighter stream on an experimental basis for a period of five years. The first batch of three women officers has been commissioned into the fighter stream in 2016. The three women fighter pilots have gradually moved up the training ladder and have graduated to frontline fighter flying in the IAF.

INDIAN COAST GUARD

17.21 Indian Coast Guard (ICG) has been inducting women officers since 1997 as permanent appointee Assistant Commandant in General Duty (GD) and Aviation Cadre (Pilots) since 1998. Till date 122 women officers are on the active rolls of the service consisting of permanent entry women officers in General Duty, aviation and Law cadre and as Short Service Appointee (SSA) in General Duty and aviation cadre. The strength of women officers in ICG approximates to about 10% of the total strength.

17.22 The service has taken proactive steps towards empowerment and welfare of women officers. Their experience, talent and dedication have been effectively utilized in areas where their competence is fully harnessed like Pilots, Observers and aviation support services. They are also employed in equally responsible task in coastal security mechanism. The women officers are also posted in remotely located stations at par with the male officers. In addition, Command appointments in Coast Guard store depots are held by women officers.

17.23 Continuing the pioneering efforts for women empowerment, ICG has been posting women officers as ACV operators onboard frontline ACV Squardrons. This is in addition to leadership roles being shouldered by women officers as Officer-in-Charge of Store Depots which are the hubs for operational logistics in ICG.

DEFENCE RESEARCH DEVELOPMENT ORGANISATION (DRDO)

17.24 DRDO as an employer is committed for creating a healthy, safe work environment that enables employees to work free from unwelcome, offensive and discriminatory behaviour, which enable them to deliver their best at work without fear of prejudice, gender bias and sexual harassment. It is ensured that women employees are accorded equal opportunities for enhancement of their skills and knowledge and

fulfillment of their potential. This has resulted in many women scientists having top positions in DRDO and achieving organizational objectives.

17.25 Every year DRDO commemorate International Women's Day at national level across the country. A one day national level workshop on "DRDO Initiative of Women Augmenting Services (DIWAS)" was hosted by DIHAR at Leh-Ladakh, Jammu & Kashmir where women scientists, technologists, officers and staff from different laboratories/establishments of DRDO from all over the country participated.

DEPARTMENT OF DEFENCE PRODUCTION (DDP)

17.26 ***Ordnance Factory Board (OFB):*** Ordnance Factory Board has already issued instruction for Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 to all Ordnance Factories (OFs)/Units for immediate circulation of the above Act, through factory order/daily order for wide publicity. Women employees are not deployed at odd hours duty shift. All basic amenities like proper working area, separate toilets, restrooms have been provided to women employees in all OFs/Units. Training facilities are being provided to women employees at par with their male counterparts. Such training includes refresher course/induction training.

17.27 ***Hindustan Aeronautics Ltd. (HAL):*** The strength of women employees in HAL was 2348 as on December 31, 2018. HAL is a Corporate Life Member of the Women in Public Sector (WIPS) Forum and opportunities to participate in the programmes / activities of the WIPS Forum are extended to women employees. All statutory welfare amenities have been extended to women employees. Exclusive Training & Learning Programmes viz. Women Empowerment Program; Emerging Women Leadership; Women on Board etc., are being conducted by HAL. Equal Opportunities are provided to Women Employees at all levels for advancement in their career. Nominations of Women Employees were forwarded for various Awards / Recognitions. Internal Complaints Committees have been constituted in Divisions / Offices as per the Sexual Harassment of Women at Workplace (Prevention, Prohibition & Redressal) Act, 2013.

17.28 ***Bharat Electronics Ltd.(BEL):*** BEL has around 2049 women employees. Gender diversity is appreciated and acknowledged for women empowerment at all levels and forums. Fair opportunities are provided in recruitment, career progression, learning and development, welfare measures etc. Women have assumed leadership positions in critical roles (GM & Director) in BEL and play a vital role in business growth. According to the provisions of the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013, "Internal Complaints Committee" has been constituted and functions with a Senior Women Officer as its Presiding Officer at all Units. Awareness programmes are being conducted for employees to make them aware of their duties and privileges.

17.29 ***BEML Ltd:*** BEML is an equal opportunity employer, thereby creating a conducive environment of work for female employees / executives across the organization. In selection, recruitment, promotions, career development, equal opportunity is provided to all the women employees/executives in the Company. Also the women executives are given equal opportunity in decision making and enjoy equal administrative and financial powers as per the Delegation of Powers of the Company. Further, all the applicable statutory provisions under the Factories Act, Maternity Benefit Act, etc., are being complied both in letter and spirit.

17.30 In addition to the above, in terms of Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act 2013 with a view to provides protection against sexual harassment of women at workplace and for prevention and redressal of complaints of Sexual Harassment and for matters connected therewith or incidental thereto, the Internal

Complaints Committee (ICC) has been constituted. The total strength of women Employees/Officers (as on March 31, 2019) is:

- Women Officers - 136
- Women Employees - 130

17.31 Certain special initiatives which are extended/ continuing to be extended to women employees/ executives are as follows:

- The Company has constituted Women Cells in all the Production Units including Corporate Office to address the issue connected to Women Employees / Executives.
- All women employees irrespective of their wage group get 12 days of casual leave as against 7 days of casual leave to the male employees in wage group A to D.
- Creche allowance of ₹ 200/- per month is paid to women employees/executives having a child below the age of 5 years.
- A dedicated intranet mail-id has been provided to facilitate free exchange of ideas & views among women employees / executives of the Company.
- WIPS committee formed to enhance professionalism and competence of working women.
- All women employees have been provided with Maternity Benefit of 26 weeks in line with Maternity Benefit (Amendment) Act 2017.

17.32 ***Bharat Dynamics Ltd. (BDL):*** There are 326 women employees working in BDL as on March 31, 2019 which constitutes 10.63 % of the total workforce. The Company amended its Standing Orders, CDA rules and incorporated a chapter on "Prohibition of Sexual Harassment of Women Employees at Work Place". A "Complaints Committee" headed by a senior woman officer has been constituted to enquire into complaints. Women employees (Executives & Non-Executives) are nominated in Trade Union and Officer's Association. Company provides necessary facilities for participation in WIPS.

17.33 ***Garden Reach Shipbuilders & Engineers Ltd (GRSE):*** In GRSE, the strength of women employee is 105 which is around 5% of the total strength in the Company. For women employee and executives, GRSE has created a conducive environment to work. International Women's day was celebrated by GRSE on March 12, 2019, wherein, around 100 lady employees participated in the programme that was attended by two eminent speakers Dr. Reena Ramachandran, former CMD, HOCL Ltd. & founder President, WIPS Apex and Smt. Simi Suri, Behavioral Expert who addressed the gathering. GRSE has also been conferred with the Recognition of WIPS Activities Award in 2017 & 2018 consecutively

17.34 ***Goa Shipyard Ltd. (GSL):*** Women at GSL are given at par opportunities with their men counterparts. Regular awareness and training programs are organized for them. An 'Internal Complaints Committee' for prevention of sexual harassment at workplace and redressal of complaints has been constituted.

17.35 ***Hindustan Shipyard Ltd (HSL):*** A "Gender Budgeting & Women in Public Sector Cell" has been constituted with five women officers for effective implementation of general development program for women employees such as training, advancement of skills and provision of welfare amenities at work place etc. and also to enhance the effectiveness of women employees in their career management and overall personality development. There are presently 54 women employees on permanent rolls of the yard.

17.36 ***Mazagon Dock Shipbuilders Ltd. (MDL):*** With a view to empowering women employees, MDL has undertaken following initiatives exclusively for women employees. There are around 100 Women employees (executives and staff) members in the Forum of Women in Public Sector (WIPS). WIPS carries out various women empowering activities viz. National & Regional Meet - WIPS, Celebration of International Women Day and Donation and Visit to Old Age Home near Mazagon. Women employees were imparted trainings on Sexual Harassment at Work Place by POS, Life Skills Management, Management Soft Skills, Workshop of competency and skill building and provided Apprenticeship for skill enhancement in various trades to 97 girl Apprentices during Financial Year 2018-19.

17.37 ***Mishra Dhatu Nigam Limited (MIDHANI):*** MIDHANI has extended all facilities as per the statutes for the welfare of all its women employees. Women employees of MIDHANI belonging to Executive, Supervisory and Non Executive cadre are involved in all areas of operation of the Company right from Material procurement, Production, Maintenance, Dispatches to support services such as Civil, Finance, HR, Marketing etc. At present there are 81 women employees collectively working at par with men towards achieving the Company goals. There is no gender based bias or restrictions on career advancement of women employees.

17.38 ***Directorate General of Quality Assurance (DGQA):*** All opportunities and benefits as per the guidelines and policies issued by the Government of India and other statutory authorities from time to time with regard to women empowerment and welfare are being implemented.

DEPARTMENT OF EX-SERVICEMEN WELFARE (DESW)

17.39 Department of Ex-Servicemen Welfare deals with the rehabilitation and welfare of about 32 lakh Ex-servicemen including widows of Armed Forces personnel and their dependent family members. Financial assistance is being provided to the girls and women under various schemes. Kendriya Sainik Board (KSB) Secretariat provides financial assistance for education, marriage of daughters of ESM and re-marriage of widows.

17.40 Education Scholarship for professional degree courses is provided to girls under Prime Minister's Scholarship Scheme (PMSS). 5500 number of scholarships under PMSS is divided equally between boys and girls. The amount of scholarships is ₹ 2,000/- for boys and ₹ 2,250/- for girls per month and is paid annually.

17.41 Formation of Internal Complaints Committee for matter related to Sexual Harassment of Women at Workplace has been implemented in Kendriya Sainik Board (KSB) Secretariat.

17.42 Widows of ESM are eligible for Resettlement Training under Directorate General of Resettlement (DGR). A number of DGR Employment Schemes like Coal Tipper Scheme, Oil Product Agencies, Safal Booths etc. are given priority to certain categories of widows of ESM.

17.43 War widows are exempted from payment of contribution under Ex-Servicemen Contributory Health Scheme.

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CHAPTER **18**

INITIATIVES TOWARDS SIMPLIFICATION, DECENTRALIZATION AND ENHANCING THE EASE OF DOING BUSINESS

18 INITIATIVES TOWARDS SIMPLIFICATION, DECENTRALIZATION AND ENHANCING THE EASE OF DOING BUSINESS

18.1 Equipping the Armed Forces with state-of-the-art weapon systems and equipment, and promoting self-reliance in defence sector by giving a boost to domestic manufacturing are two sides of the same coin. Several path-breaking initiatives were taken by the Ministry during the period towards simplification, rationalization, and decentralization of decision-making and streamlining of procedure, which resulted in enhancement of the ease of doing business and replacement of red tape by the red carpet. This chapter provides an overview of such measures.

Delegation of Financial powers and Decentralisation of Decision – making

Delegation of powers to undertake works of Perimeter Security:

18.2 Following certain incidents of breach of security of military stations, a decision was taken in 2017 to delegate substantial financial powers to the Armed Forces to expedite the decision making process. In order to undertake expeditious strengthening of the perimeter infrastructure and access control mechanisms covering military bases/ aviation bases of six Army Commands with an estimated expenditure of ₹ 1487.27 crore, financial powers were delegated to the Vice Chief and Army Commanders to execute this work in a specified time frame. For round-the-clock surveillance, detection and delay of any unwanted intrusion through the perimeter, the Air Force has embarked upon a multi sensor based technology intensive Integrated Perimeter Security System (IPSS) for 23 sensitive and high risk bases. Full powers have been delegated to the Vice Chief of Air Staff (VCAS) to undertake the project on priority.

Financial Empowerment the Tri-Services Command in Andaman and Nicobar Islands

18.3 The Andaman and Nicobar Command (ANC) is the first and only Tri-service theater command of the Indian Armed Forces. It was created in 2001 to safeguard India's strategic interests in Southeast Asia and the Strait of Malacca by increasing rapid deployment of military assets in the region. It provides logistical and administrative support to naval ships which are sent on deployment to East Asia and the Pacific Ocean. The ANC has great operational significance and is a remote area far away from the mainland. In order to strengthen the authority of the Commander-in-Chief Andaman & Nicobar (CINCAN) and to ensure that it becomes a truly integrated unit of all the armed forces, the Central Government, in exercise of powers under the Army Rules, 1954, issued notification declaring that Officers of the Navy and Air Force will exercise command over persons subject to the Army Act, who are attached to or are serving in Air Force Units or Naval Ships or Establishments, or Army Units commanded by such Officers; or Unified Service Organizations or Establishments, including the Andaman and Nicobar command, comprising members of the Army, Navy and Air Force or any two of them. A similar notification has also been issued by the Air Force. Further, to empower the Command with greater financial autonomy, the financial powers of the CINCAN under the Integrated Defence Staffs Schedule of Powers were substantially enhanced in August 2018.

Delegation of powers for Capital Acquisition by Services

18.4 Keeping in view the need for efficient and expeditious processing of capital acquisition cases to meet the requirements of the three Services under enhanced delegated financial powers, Ministry of Defence also enhanced existing delegation of financial powers for sanction of Capital Acquisition proposals covered under the Services Capital Annual Acquisition Plan as follows:

(i)	Upto ₹ 300 crore	Service Headquarters [To be exercised by VCOAS, VCNS, DCAS, CISC and DG(CG)].
(ii)	Above ₹ 300 crore and upto ₹ 500 crore	Defence Secretary
(iii)	Above ₹ 500 crore and upto ₹ 2000 crore	Raksha Mantri
(iv)	*Above ₹ 2000 crore and upto ₹ 3000 crore	Finance Minister
(v)	* Beyond ₹ 3000 crore	CCS

* There is no change in the existing financial powers of Finance Minister and CCS.

Delegation of Powers to Change Sub-vendors Under Offset Contracts

18.5 A decision has been taken that Secretary (DP) will be the Competent Authority for disposal of requests permitting change/ addition/ deletion of Tier-1 sub-vendors for the following:

(a) In respect of offset contracts which are governed by the Defence Procurement Procedure (DPP) 2011 onwards where Tier-1 sub-vendors are permitted to discharge offset obligations on behalf of the main/ prime vendor; and

(b) In respect of the signed offset contracts wherever Tier-1 sub-vendors or Programme Partners, as applicable, had been permitted to the contracts but governed by DPP 2006 and 2008.

Simplification, Streamlining and Rationalising of Capital Acquisition

Streamlining of Defence Procurement Procedure

18.6 The Defence Procurement Procedure (DPP) 2016 promulgated by Ministry of Defence in April, 2016 was primarily focused on boosting the 'Make in India' initiative of the Government of India by promoting indigenous design, development and manufacturing of defence equipment, platforms and systems. The experience of the last two years coupled with interactions with the industry and other stakeholders revealed the need to further refine and simplify the processes for enhancing efficiency and reducing timelines. In June 2017, NITI Aayog had proposed 'Business Process Re-engineering (BPR) in Capital Acquisition', aimed at simplifying the procedure and reducing timelines for processing cases. Consequently, MoD implemented reforms in Defence Procurement Procedure (DPP) through 'Business Process Re-engineering'.

Phase-I amendments are as follows:

(a) Authority for retraction of RFP.

(b) Vetting of draft Contract document concurrently with CNC.

(c) Standard composition of CNC in delegated power cases.

(d) Technical Oversight Committee (TOC) not to be mandatory for cases valued above ₹ 300 crore.

(e) TEC Report to be approved by SHQ.

(f) Approval of grace period upto 45 days to vendor(s) for producing equipment for trials within SHQ and beyond 45 days by DG(Acq).

(g) Issue of Commercial RFP before trials in Design & Development cases.

(h) Inclusion of beneficiary bank details for Bank Guarantee in RFP.

(i) Change in approving authority from RM to DG(Acq) w.r.t following issues:

(i) Extension in time for Bid.

(ii) Submission in response to RFP.

(iii) Permission for FET validations to be carried out abroad.

(iv) Delay in Signing of Contract while Concluding Contract with the Shipyard.

(j) Confirmation of Bank Guarantee (BG) provided by a foreign bank and issuance of BG by Private Sector banks authorised by Ministry of Finance.

(k) Incorporation of Arbitration and Conciliation (Amendment) Bill 2018.

(l) Commencement of AoN validity from date of issue of Minutes of Meeting of concerned Categorisation Committee.

(m) Incorporation of GST in Price Bid format and Evaluation Criteria.

Phase-II amendments are as follows:

(a) Amendment to Repeat Order clauses.

(b) Reassessment of AoN cost on receipt of DPRs in Make cases.

(c) Incorporation of Denial Clause in RFP and Standard Contract Document.

(d) Conduct of Benchmarking on receipt of Trial Report by SHQ.

(e) Reckoning date of ERV for Option Clause to be the last date of submission of Commercial Bids in original case.

(f) Inclusion of details of Independent Monitors (IMs) in RFP.

(g) Amendments to bring clarity on imposition of LD & constituting of POVs in Contract Amendment cases.

(h) Doing away with BG for Essential Parameters 'B' (EPB) in case EPB are trial evaluated during FET.

(i) Amendment to Para 5(c) of Appx A of Chapter II (Defining Attributes of Buy and Make Category) in view of promulgation of Strategic Partnership Model.

(j) Amendment to Para 5(a)(ii) of Appendix F to Schedule-I of Chapter IV by deleting the term "of the ship" from the first sentence.

(k) Amendment to incorporate applicability of latest legislation or change or amendment or enforcement of any Act or Law, Rules or Regulations.

18.7 ***Phase III & Phase IV BPR Amendments to DPP-2016:*** As a part of BPR, Phase III and Phase IV amendments to DPP 2016 are as follows:

(a) Revision of Evaluation criteria and price bid format (L1 determination).

(b) Permitting LC payments through all banks authorized for government transactions by RBI.

(c) Date of delivery to be reckoned from date of release of advance payment.

(d) Provisional acceptance of vendors letter of application to their government for export license in lieu of export license for release of advance payment in Buy (Global).

(e) Exclusion of cost of Buyer Nominated Equipment (BNE) sourced from single vendor while determining L1 vendor.

(f) Amendment to Integrity Pact Bank Guarantee (IPBG) amount.

(g) Amendments to Fast Track Procedure:

  (i) BG from Private/ PSU Banks.

  (ii) TEC acceptance within SHQ.

  (iii) Constitution of CNC based on report of Empowered Committee not empowered to negotiate and conclude contract.

  (iv) Revision of Constitution and Time Limit of Oversight Committee to facilitate scrutiny from procedural angle.

(h) Amplification/ Amendment to Para 72 of Chapter II, DPP 2016 with a view to minimise a AoN extensions and obtain competitive prices:

  (i) Validity of AoN.

  (ii) Conduct of User trials post receipt of Commercial Bids.

(i) Approval of extension upto 15 days for submission of Technical Oversight Committee (TOC) report by DG(Acq).

(j) Exemption of CNC from furnishing reasonability of cost certificate for DPSU equipment already priced by committee constituted under orders of RM.

(k) Amendment to undertaking from vendor on never being debarred in the past.

(l) Estimated cost of Proposal in AoN to include all taxes & Duties.

(m) Alignment of Period of payment of Guaranteed sum of bank in Pre-Contract Integrity Pact (PCIP) and Integrity Pact Bank Guarantee (IPBG).

(n) Incorporating full form of additional abbreviations.

(o) Amendment to Increase Effectiveness of LD clause.

(p) Approval of ab-initio single vendor cases by AoN according authority.

(q) Incorporation of Revised Delegated Financial Powers of SHQ and Defence Secretary.

Accordingly, in continuation of its efforts to streamline defence procurement procedures and to reduce timelines so as to ensure timely delivery of equipment to the Armed Forces, various measures to simplify the defence procurement procedure have been undertaken. Consequent to this exercise, measures identified on account of Business Process Re-engineering in Defence Capital procurements have been considered by the Defence Procurement Board and the Defence Acquisition Council (DAC) from time to time. After due deliberations

and approval of DAC, the following major amendments have been incorporated in DPP-2016 under Phase-I, II and III of BPR exercise:

Promulgation of Make-II Procedure

18.8 The 'Make' procedure for indigenous design, development and manufacture of defence equipment/ weapon systems, was simplified in 2016 and promulgated as Chapter – III of DPP-2016. In February 2018 a new sub-category 'Make-II (Industry Funded)' was introduced under this procedure with primary focus upon development of equipment/ system/ platform or their upgrades or their sub-systems/ sub-assembly/ assemblies/ components with focus on import substitution. For more details please refer to para 18.13.

18.9 As per the existing provisions, projects under the Make-II sub-category, with estimated cost of prototype development phase not exceeding ₹ 3 crore, will be earmarked for MSMEs. However, if no MSME expresses interest for a Make-II program of less than ₹ 3 crore, the same may be opened up for all.

18.10 DAC, in May, 2017, approved Chapter VII of DPP 2016 on Strategic Partnership Model, titled 'Revitalising Defence Industrial Ecosystem through Strategic Partnerships', which was notified by MoD on May 31, 2017. Subsequently, Naval acquisition cases for P75 (I), Naval Utility Helicopters (NUH) and Naval Multi Role Helicopters (NMRH) have been initiated under this category. However, certain procedural limitations were observed during the implementation of SP Model. Accordingly, DAC on July 30, 2018, approved following:

(a) Incorporation of the following guidelines in Chapter VII of DPP 2016:

(i) Procurement Process for cases under Strategic Partnership (SP) Model as Appendix C to Chapter VII of DPP 16.

(ii) Composition and Terms of Reference for Empowered Project Committee (EPC) as Appendix D to Chapter VII of DPP 16.

(b) Guidelines for issuance of EoI for Naval Utility Helicopter Project.

(c) Constitution of Empowered Project Committee for Procurement of NUH without awaiting Minutes of the Meeting.

Enhancing the Ease of Doing Business and Promoting 'Make in India'

18.11 As part of its effort to promote 'Make in India' in defence and aerospace in the country, Department of Defence Production has taken several steps to promote greater ease in doing business with the defence establishment. Some of the important initiatives taken in this regard are as follows.

18.12 **Defence Investor Cell:** A Defence Investor Cell (DIC) was set up by the Department of Defence Production in January 2018 to provide help, support and guidance to defence industry, particularly MSMEs. Access to DIC is available without physical interface through online portal https://defenceinvestorcell.gov.in/. During the year 2018-19, the DIC received 398 requests for help and out of these 394 were addressed/ closed. The average time taken for response was less than 2 days while the average time for closure was less than 7 days.

The number of requests received in DIC in each quarter of 2018-19 is as below:

April-June 2018	July-September 2018	October-December 2018	January-March 2019
83	142	77	96

Further, Department of Defence Production (DDP) has taken over 20 major and minor reforms and policy initiatives during 2018-19 to enhance ease-of-doing business in defence and aerospace. These include:

Revised 'Make-II' Procedure

18.13 In February 2018, Ministry of Defence had approved 'Revised Make-II' procedure as a sub-category for procurement of defence goods from private industry. The Revised Make-II procedure had several industry friendly provisions including no limit on vendors who could participate in prototype development, no retraction of RFP once issued, reduced time line for contract finalization, hand-holding support from Project Management Team etc. 35 projects were given approval-in-principle under Make-II during 2018-19 offering the design and development to private industry.

Looking at the success of Revised Make-II procedure, Ministry of Defence has approved, in February 2019, a 'Make-II' for OFB. Further, similar framework has also been advised to Defence PSUs for suitable consideration and adoption. Salient features of the simplified procedure are as follows:

- Inviting suggestions for project from the industry, start-ups and individuals, especially in respect of items which are currently being imported;
- Approval of project by a collegiate comprising DRDO, HQ (IDS), DoD under a Committee chaired by Secretary (DP);
- Hosting of Expression of Interest (EoI) in respect of approved projects on MoD websites;
- No limit on number of industry players who may show interest and offer a prototype;
- An RFP. RFP once issued, will not be retraced. The winning bidder is assured of an order;
- Service HQrs to constitute a Project Facilitation Team to facilitate the process;
- Case to be progressed even if only one entity has offered an innovative solution;
- Industry which develops the project will retain the title, ownership and IPR (except for specified reasons like national security);
- Normally no negotiations in multi-vendor contracts.

The simplified 'Make-II' procedure will reduce the total time from in-principle approval to placing of order by half. The time taken to complete the whole process is estimated to come down from 103 weeks to 69 weeks.

Suo-moto Scheme

18.14 The suo-moto scheme as a special mode of Revised Make-II was approved in June 2018 thereby enabling industry to suo-moto propose products/ equipment that they think can be used by Indian forces. This is the first time that a formal mechanism for receiving suo-moto proposals from industry has been devised. Suo-moto proposals by industry can be made online to any of the three Services, Army, Navy, Air Force. Each Service has appointed a senior officer as a Nodal Officer to look into these suo-moto proposals. The first suo-moto proposal was given approval in principle in August 2018. During 2018-19, 5 suo-moto proposals have been granted approval-in-principle opening a new chapter in defence industry collaboration.

Additional Option of Testing by Third Parties

18.15 Director General of Quality Assurance (DGQA), Department of Defence Production has approved Third Party Inspection as an additional option for testing of various items vide reference dated May 30, 2018.

According to this scheme, qualified third party testing agencies will be empanelled by DGQA and Users (Services: Army, Navy, Air Force, OFB, DPSUs, DRDO, Industry) will have the option to offer some of the stores being procured to these agencies for testing.

HAL and DGAQA have, in February 2019, jointly identified and empanelled 5 Third Party Testing agencies for testing aero-components needed by HAL. The empanelment of Third Party Testing agencies will provide an additional option for testing aero-components in the country and enhance ease of doing business to nearly 5000 or so HAL vendors.

Streamlining of Defence Licensing Requirements

18.16 Working closely with MHA and Department for Promotion of Industry and Internal Trade (DPIIT), DDP had streamlined the defence licensing requirements under the Arms Act, 1959 and the Industrial (Development and Regulation) Act, 1951. Ambiguities regarding which items are covered under Arms Act were clarified. Moreover, license requirements for several components was pruned down, thereby making it easier for industry to invest in those components. DPIIT's Press Note 1(2019) Series dated January 1, 2019 and MHA notification dated December 14, 2018 refer to these simplifications.

Implementation of 'Make in India' Order

18.17 DDP has notified notified 111 items (upto March 31, 2019) under Public Procurement Order 2017 notified by Department for Promotion of Industry and Internal Trade (DPIIT). The Defence PSUs and OFB are required to give preference to domestic manufacturers while procuring these items in accordance with the said policy. This is expected to provide greater opportunities to domestic industry catering to these organizations and reduce dependence on imports.

18.18 ***Other Measures***

- OFB has removed ex-ante capacity verification for registering vendors vide its reference dated February 12, 2019. This addresses a long standing demand of the industry in this regard.
- During 2017-18, DDP had notified 275 items which were previously exclusively sourced from OFB, for sourcing from open industry. As a further step towards ease of doing business to enable industry to access defence markets, 135 items have been placed on Government eMarketplace during the year. This has greatly facilitated vendors to supply these items to Indian forces.
- To ensure that MSMEs supplying material to Defence PSUs get timely payment, all nine Defence PSUs have implemented Trade Receivables electronic Discounting System (TReDS) during the year 2018-19.
- To reduce delays and red tape, it has been decided that all design documents, required to be shared with MSMEs/ vendors for developing a defence/ aerospace related component/ item, will be shared online along with the RFP. Necessary instructions have been issued by OFB on February 13, 2019.
- OFB has been advised to hold monthly meetings at all its 41 factories, with its vendors, on the last Wednesday of every month to resolve any issues which the vendors may have. Besides, quarterly meetings are to be held at OFB HQ level to discuss issues which are not resolved at GM level during the factory level meetings. These meetings have been held regularly since August 2018.

- Public sector testing facilities are being made available to industry for testing their products.

- Bookings and payments by exhibitors for Aero India 2019 were made entirely online enabling exhibitors to complete full process without any physical interaction. Similarly, gate passes for Aero India 2019, for officials and general public were also sold online. This introduced much greater transparency and ease in doing business.

- OFB Procurement Manual was revised in September 2018 thereby introducing several provisions which greatly enhance ease of doing business of MSMEs supplying goods to OFB.

Promoting Defence Trade

18.19 Several steps have also been taken during the period to promote ease of doing business with respect to export of defence and aerospace items. These include:

- An end-to-end online portal (http://defenceexim.gov.in/) has been developed and made functional since October 2018 to receive and process all applications for export authorisations under List 6 of SCOMET list for which permissions are granted by DDP. This has resulted in transparency, efficiency and faster authorisations.

- DDP worked with Ministry of Home Affairs (MHA) based on which notification dated November 1, 2018 was issued by MHA, delegating powers to issue export permission under the Arms Act to DDP. As a result, a potential exporter needs export permission only from DDP as against both DDP and MHA in the past.

- Export authorizations granted by DDP have now been provided for extended period beyond 2 years upto the period of contract.

- Repeat export of same item and same destination to be given NOC.

- Export authorisations for parts/ components of munitions for civil use to be granted within 15 days.

- The process for import and re-export for repair/ rework has been simplified.

- DDP has approved a new scheme for defence exports in October 2018, under which a defence related industry can be tested and certified, in terms of the scheme, as supplying equipment/ goods fit for Indian military use, if they were technically qualified during the procurement process, thereby facilitating their export. Additionally, the scheme also allows for testing and certification of potential defence exports as per the SQRs of the destination country.

- A senior official of Department of Defense, USA has been notified to facilitate exports by Indian defence industry to the USA.

18.20 ***Defence Export NOC:*** A revised SOP for processing export authorization applications of SCOMET Category 6 was promulgated on November 1, 2018. Following amendments have been incorporated:

(a) Customised End User Certificate (EUC) format for parts and components.

(b) Validity of Export Authorisation.

(c) Procedure for importing and re-exporting of items for repair and rework under warranty obligation.

18.21 ***SOP for Scheme for Promotion of Defence Export:*** A scheme for promotion of Defence Export was promulgated on October 4, 2018. The aim of the scheme is to provide access to Government test labs to Indian industry and certify them in order to enhance their product marketability. To ensure ease of implementation of the scheme, a SOP has also been promulgated by MoD on March 6, 2019.

18.22 ***Defence Import NOC:*** Directorate General of Foreign Trade (DGFT), in May 2018, delegated powers to DDP for grant, renew or suspension of import license for certain defence items. In exercise of these powers, DDP has been processing import applications. Two import applications have been processed by IN since September 2018. In addition, DDP is formulating an SOP for processing import applications akin to Export NOC application processing in order to streamline the procedure.

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APPENDIX-I

MATTERS DEALT WITH BY THE DEPARTMENTS OF THE MINISTRY OF DEFENCE

A. DEPARTMENT OF DEFENCE (RakshaVibhag)

1. Defence of India and every part thereof, including preparation for defence and all such acts as may be conducive in times of war to its prosecution and after its termination to effective demobilization.

2. The Armed Forces of the Union, namely, the Army, the Navy and the Air Force.

3. Integrated Headquarters of the Ministry of Defence comprising Army Headquarters, Naval Headquarters, Air Headquarters and Defence Staff Headquarters.

4. The Reserves of the Army, Navy and Air Force.

5. The Territorial Army.

6. The National Cadet Corps.

7. Works relating to Army, Navy and Air Force.

8. Remounts, Veterinary and Farms Organisation.

9. Canteen Stores Department.

10. Civilian Services paid from Defence Estimates.

11. Hydrographic Surveys and preparation of navigational charts.

12. Formation of Cantonments, delimitation/ excision of Cantonment areas, local self-government in such areas, the constitution and powers within such areas of Cantonment Boards and authorities and the regulation of housing accommodation (including the control of rents) in such areas.

13. Acquisition, requisitioning, custody and relinquishment of land and property for defence purposes. Eviction of unauthorized occupants from defence land and property.

14. Defence Accounts Department.

15. Purchase of food stuffs for military requirements and their disposal, excluding those entrusted to Department of Food and Public Distribution.

16. All matters relating to Coast Guard Organisation, including:

    (i) Surveillance of maritime zones against oil spills;

    (ii) Combating oil spills in various maritime zones, except in the waters of ports and within 500 metres of off-shore

exploration and production platforms, coastal refineries and associated facilities such as Single Buoy Mooring (SBM), Crude Oil Terminal (COT) and pipelines;

(iii) Central Co-ordinating Agency for Combating of Oil Pollution in the coastal and marine environment of various maritime zones;

(iv) Implementation of National Contingency Plan for oil spill disaster; and

(v) Undertaking oil spill prevention and control, inspection of ships and offshore platforms in the country, except within the limits of ports as empowered by the Merchant Shipping Act, 1958(44 of 1958).

17. Matters relating to diving and related activities in the country.

18. Procurement exclusive to the Defence Services.

19. All matters relating to Border Road Development Board and Border Road Organisation.

B. DEPARTMENT OF DEFENCE PRODUCTION (Raksha Utpadan Vibhag)

1. Ordnance Factory Board and Ordnance Factories.

2. Hindustan Aeronautics Limited.

3. Bharat Electronics Limited.

4. Mazagon Docks Limited.

5. Garden Reach Shipbuilders & Engineers Limited.

6. Goa Shipyard Limited.

7. Bharat Dynamics Limited.

8. Mishra Dhatu Nigam Limited.

9. Defence Quality Assurance Organizations, including Directorate General of Quality Assurance and Directorate General of Aeronautical Quality Assurance.

10. Standardisation of defence equipment and stores including Directorate of Standardisation.

11. BEML Limited.

12. Hindustan Shipyard Limited.

13. Development of aeronautics industry and co-ordination among users other than those concerned with the Ministry of Civil Aviation and the Department of Space.

14. Indigenisation, development and production and defence equipment and participation of the private sector in the manufacture of defence equipment.

15. Defence exports and international cooperation in defence production.

C. DEPARTMENT OF DEFENCE RESEARCH & DEVELOPMENT (Raksha Anusandhan Tatha Vikas Vibhag)

1. Apprising, assessing and advising Raksha Mantri on the influence on National Security of emerging developments in Science and Technology.

2. Rendering advice to Raksha Mantri and to the three services and inter-services organizations on all scientific aspects of weapons; weapons platforms; military operations; surveillance; support and logistics in all likely threats of conflict.

3. To function, with the concurrence of the Ministry of External Affairs, as the nodal co-ordinating agency of the Ministry of Defence on all matters relating to Instruments of Accord with foreign Governments relating to the acquisition of technologies whose export to India is the subject of national security related controls of foreign Governments.

4. Formulation and execution of programmes of scientific research and design, development, test and evaluation, in fields of relevance to national security.

5. Direction and Administration of agencies, laboratories, establishments, ranges, facilities, programmes and projects of the Department.

6. Aeronautical Development Agency.

7. All matters relating to certification of the design air worthiness of military aircrafts, their equipment and stores.

8. All matters relating to the protection and transfer of technology generated by the activities of the Department.

9. Scientific analysis support and participation in the acquisition and evaluation proceedings of all weapon systems and related technologies proposed to be acquired by the Ministry of Defence.

10. To render advice on the technological and intellectual property aspects of the import of technology by production units and enterprises manufacturing, or proposing to manufacture, equipment and stores for the Armed Services.

11. To deal with reference made under section 35 of the Patents Act, 1970(39 of 1970).

12. Financial and other material assistance to individuals, institutions and bodies corporate, for study and for the training of manpower on aspects of Science and Technology that bear on national Security.

13. In consultation with the Ministry of External Affairs, international relations in matters connected with the role of Science and Technology in national security, including :

    (i) matters relating to relations with Research Organizations of other countries and with Inter-governmental agencies, particularly those which concern themselves, inter alia, with the scientific and technological aspects of national security.

    (ii) Arrangements with Universities, educational and research-oriented institutions or bodies corporate abroad to provide for foreign scholarships and the training of Indian scientists and technologists under the administrative control of the Department.

14. Execution of works and purchase of lands debitable to the budget of the Department.

15. All matters relating to personnel under the control of the Department.

16. Acquisition of all types of stores, equipment and services debitable to the budget of the Department.

17. Financial sanctions relating to the Department.

18. Any other activity assigned to, and accepted by the Department through understandings or arrangements with any other Ministry, Department, Agency of the Government of India whose activities have a bearing on the scientific and technological aspects of national security.

D. DEPARTMENT OF EX-SERVICEMEN WELFARE (Poorva Senani Kalyan Vibhag).

1. Matters relating to Armed Forces Veterans (Ex-Servicemen), including pensioners.

2. Armed Forces Veterans (Ex-Servicemen) Contributory Health Scheme.

3. Matters relating to Directorate General of Resettlement and Kendriya Sainik Board.

4. Administration of :

   a) the Pension Regulations for the Army 1961(Parts I and II);

   b) the Pension Regulations for the Air Force, 1961 (Part I and II);

   c) the Navy (Pension) Regulations 1964; and

   d) the Entitlement Rules to Casualty Pensionary Awards to the Armed Forces Personnel, 1982.

E. DEFENCE (FINANCE) DIVISION (Raksha Vitta Vibhag)

1. To examine all Defence matters having a financial bearing.

2. To render financial advice to the various functionaries of Ministry of Defence and the Services Headquarters.

3. To act as integrated Finance Division of Ministry of Defence.

4. To assist in the formulation and implementation of all schemes/ proposals involving expenditure.

5. To assist in the formulation and implementation of Defence Plans.

6. To prepare Defence budget and other estimates for the Defence Services, Civil Estimates of Ministry of Defence, estimates in respect of Defence Pensions and to monitor the progress of the scheme against the budget.

7. To exercise post-budget vigilance to ensure that there are neither considerable shortfalls in expenditure nor unforeseen excesses.

8. To advise heads of branches of the Armed Forces Headquarters in the discharge of their financial responsibility.

9. To function as the accounting authority for the Defence Services.

10. To prepare the Appropriation Accounts for the Defence Services.

11. To discharge the responsibility for payments and internal audit of Defence expenditure through the Controller General of Defence Accounts.

APPENDIX-II

MINISTERS, CHIEFS OF STAFF AND SECRETARIES WHO WERE IN POSITION FROM JANUARY 1, 2018 ONWARDS

RAKSHA MANTRI

Smt. Nirmala Sitharaman — From September 3, 2017 to May 30, 2019

Shri Raj Nath Singh — From May 31, 2019 onwards

RAKSHA RAJYA MANTRI

Dr. Subhash Ramrao Bhamre — From July 5, 2016 to May 30, 2019

Shri Shripad Yesso Naik — From May 31, 2019 onwards

DEFENCE SECRETARY

Shri Sanjay Mitra

From May 25, 2017 onwards

SECRETARY DEFENCE PRODUCTION

Dr. Ajay Kumar

From December 1, 2017 onwards

SECRETARY EX-SERVICEMEN WELFARE

Ms. Sanjeevanee Kutty

From July 31, 2017 onwards

CHIEF OF ARMY STAFF

General Bipin Rawat,

UYSM, AVSM, YSM, SM, VSM

From January 1, 2017 onwards

CHIEF OF NAVAL STAFF

Admiral Sunil Lanba,

PVSM, AVSM, ADC

From June 1, 2016 to May 31, 2019

Admiral Karambir Singh,

PVSM, AVSM

From May 31, 2019 onwards

CHIEF OF AIR STAFF

Air Chief Marshal BS Dhanoa,

PVSM, AVSM, YSM, VM, ADC

From January 1, 2017 onwards

SECRETARY (DR&D)

Dr. S. Christopher, Distinguished Scientist

From May 29, 2015 to May 28, 2018

Shri G. Satheesh Reddy, Distinguished Scientist

From August 27, 2018 onwards

FINANCIAL ADVISER (DEFENCE SERVICE)/ SECRETARY (DEFENCE FINANCE)

Shri S.K. Kohli

From October 1, 2016 to August 31, 2018

Smt. Madhulika P Sukul

From September 1, 2018 to December 21, 2018

Ms. Gargi Kaul,

From December 21, 2018 onwards

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APPENDIX-III

REPORT NO. 8 OF 2018
EXECUTIVE SUMMARY

This Report contains the results of audit of the transactions for the year ended March 2017 pertaining to Ordnance Factories Organisation under the Department of Defence Production, Ministry of Defence. The Report is divided into three Chapters. Chapter I contains the profile and performance of the Ordnance Factory Board for the year 2016-17. Chapter II contains audit observation on "Quality Management in Ordnance Factories dealing with Ammunition and Explosives". Chapter III contains three long paragraphs and two audit paragraphs on other issues.

The significant audit findings as brought out in the Report are summarised as follow:

Performance of Ordnance Factory Board

Ordnance Factory Board (OFB) functioning under the administrative control of the Department of Defence Production of the Ministry of Defence, is engaged in the production of range of arms, ammunition, equipment, clothing etc. primarily for the Armed Forces of the country. There are 41 Ordnance Factories divided under five operating group under the OFB.

The OFB received budgetary grant of ₹ 16,758 crore and ₹ 715 crore in 2016-17 to meet its revenue expenditure and capital expenditure against which ₹ 16,403 crore and ₹ 717 crore were spent respectively.

During 2016-17, the Cost of Production at these factories was ₹ 20,037 crore which showed 10 percent increase over the last year. While Stores and Labour account for 56 percent and 11 percent of the Cost of Production, overhead (Indirect Cost) contributed 31 percent of the cost of production. Major elements of Overheads are supervision charges and indirect labour costs which together contributed 62 to 65 percent of total Overhead cost during 2012-13 to 2016-17.

In 2016-17, OFB supplied materials of ₹ 20,876 crore (12 percent increase from the last year) to its different indentors. Indian Army is the major indentor for the products of Ordnances Factories, accounting for nearly 80 percent of the total issues. While supplies to Defence indentors are required to be on cost basis. OFB earned a profit of ₹ 434 crore against issues to the Armed Forces. OFB also earned a profit of ₹ 142 crore in supply of products to other factories as inputs for final products. The profit charged on Inter Factory Demand (IFD) issues is unnecessary as it resulted in avoidable inflation of the Cost of Production. Further, export by OFB during 2016-17 was very meagre.

Army places demand on OFB for supply of the items and subsequently, OFB fixes production targets to the Factories to fulfill the demand of Army. A significant quantity of Army's demand for some principal ammunition items remained outstanding as of March 31, 2017, thus affecting adversely their operational

preparedness. The Factories achieved the targets only for 43 percent of items in 2016-17.

OFB held inventory of ₹ 14,758 crore representing 69 percent of the Cost of Production in 2016-17 WIP (Work-in-Progress: unfinished items lying at the shop floor), constituting almost 30 percent of the total inventory, is an area of concern in Ordnance Factories. Production order to manufacture an item is to be closed within six months. The main reason for high holding of WIP is that a large number of production order, the oldest being from the year 2008-2009, remained outstanding of March 2017 of which 23 percent pertained to more that one year.

Ministry identified (April 2017) 143 items as non-crore items under production with OFB and decided that Army can procure these non-core items from trade without getting no objection certificate (NOC) from OFB. On the other hand, OFB can participate in such tenders of Army and get orders on competitive basis.

Annual Accounts of the OFB are being maintained in two formats: traditional and commercial format. The introduction of commercial accounting system is a step towards facilitating commercially competitive decisions in an evolving environment in defence production with the entry of private sector. Commercial Accounts are intended to clearly bring out the financial health of each Factory and OFB as a whole.

(Chapter I)

Quality Management in Ordnance Factories dealing with Ammunition and Explosives

Quality of ordance and ammunition is essential to ensure their reliability and accuracy in usage as well as safety and satisfaction of Users. Quality management is ensured in a multi-tiered framework comprising Quality Control (QC) by Ordnance Factories and Quality Assurance (surveillance through samples and final inspection) by the Directorate General of Quality Assurance (DGQA) before issue to the Armed Forces.

Audit covered the performance of the Ordnance Factory Board (OFB), Controllerate of Quality Assurance (CQA) (Ammunition), Kirkee and five Ordnance Factories along with attached Senior Quality Assurance Establishments (SQAEs) for 2013-14 to 2016-17 in managing quality control and assurance activities for five large caliber ammunitions (155mm ERFB BB and BT, 130mm FVC and RVC and 125mm HEAT) and their major components viz empty shell body, fuze, primer and propellant.

Quality checks on Input Materials

Against stipulated time of 15 days for inspection of input materials after their receipt in the Factory, only 36 percent input materials were inspected within 15 days mainly due to documentation gap and dependence on outside laboratories. Certain critical checks were not carried out or carried out not to the extent prescribed prior to acceptance of the input materials. This had adverse impact on the quality of finished products in final inspections leading to their return for rectification (RFR) and rejection.

Quality Control and Quality Assurance of Manufacturing Process

Inadequate compliance to the process schedule as well as inadequate documentation of the checks conduced resulted in recurred return for rectification (RFR)/ rejections on the same grounds. There were rejections worth ₹ 146 crore in respect of three out of five types of ammunitions selected in audit.

The proofing activities at Central Proof Establishment (CPE), Itarsi took more than one month in respect of 26 percent of the cases. Further, shortage of equipment had adverse impact on the conduct of tests at Factory Quality Control sections and SQAEs.

The Network Quality Database Management System was planned to be implemented by March 2012 for sharing of quality related data/documents among the stakeholders. Its implementation was far behind the schedule because of non-uniformity of the modules, uploading of incomplete and inconsistent data and flows in data integrity.

User's Feedback and other Structures for Quality Improvement

There were abnormal delays in defect investigation of accidents/failure reported by Users. In 65 percent of the cases where investigation were closed during 2013-17, it took more than prescribed time of 210 days and up to 3727 days for closure of the report. Controllerate of Quality Assurance (CQA) (Ammunition) attributed the delay to delayed receipt of reports/samples from the Users, facilitation of checks by OFs and actions involving multiple agencies located at different places.

Quarterly Review Meetings on defect investigation and other quality issues amongst DGQA, Army and OFB were not found effective because no accountability was fixed despite having recurrent delays.

At the Factory level, Joint Investigation of rejection by OFs and SQAE was also a prolonged process. In some cases, it took an average 616 days for completion and many cases remained inconclusive despite delays of three to 62 months.

Ministry had set up (April 2008) Alteration Committee (AC) in the Factories, chaired by the General Manager with representatives from DGQA, CQA, Factory, Users and DRDO to identify areas for product improvement including those changes identified after defect investigation. It was observed that functioning of the Alteration Committee was not effective as the matters referred to the Committees did not find timely resolution.

Quality Policy

There was no documented comprehensive quality policy laid down by the Ministry as of May 2017. Instead, piecemeal orders/instructions were issued by the Ministry and Ordnance Factory Board. In the absence of an overarching quality policy, existing quality structure lacked coherence and did not establish synergy needed for optimum distribution of responsibility and authority among the stakeholders in Defence Production.

SQAE's deep involvement in the process of manufacture would compromise its independence in final inspection, remove the autonomy of the manufacturer, diffusing responsibility and could lead to potential conflict of interest.

(Chapter II)

Production of Parachutes in Ordnance Factories

Ordnance Parachute Factory Kanpur (OPF) manufactures various parachutes for the Armed Forces. Users' requirement of parachutes is of significant importance because of their strategic use in man carrying supply drop emergency escape of pilots from aircraft for aborted take-off and to reduce landing run length to aircraft etc.

Audit was conducted at OPF and OFB for the period from 2012-13 to 2016-17 on production of 11 selected parachutes for the Army and Air Force to ascertain whether OFB supplied quality parachutes to the Users in time and as per their requirements. The results of audit are briefed as under:

There were deficiencies in production planning like delays of two to five months in holding target fixation meetings, non-identification of item-wise production capacity and production constraints/capacity shortage not projected in the meetings for fixing realistic targets.

The targets were routinely revised downwards mid-year due to OPEs inability to manufacture as per the target because of non-availability of quality metal components/fabrics and scarcity of vendors.

Out of 49 instances analysed, OPF achieved production target only in five instances during 2012-13 to 2016-17. The shortfall occurred mainly due to delayed procurement and receipt of input materials, limited vendor base and delay in resolving drawing/specification issues. As a result, there were significant outstanding orders in the range of 31 to 95 percent for nine parachute items as of March/April 2017. The Users also had deficiencies in respect of seven parachute items to the extent of 33 to 100 percent against their authorised holdings. Critical shortage of the required parachutes adversely affected operational preparedness of the Army and Air Force.

There were deficiencies in inspection of input materials by the Way of acceptance of materials by the Waiver Board (formed without mandate of the Ministry) with deviations from specified parameters. Some of the parameters were not tested before acceptance of materials leading to various defects/flaws in the fabric of finished parachutes. Because of quality problems, significant quantity of finished parachutes was returned for rectification (RFR). Recurrently, Quality Assurance agencies accepted Air Force parachutes with deviation.

No Alteration Committee was formed at OPF. Instead, Configuration Control Board and Waiver Board were set up, without any mandate of the Ministry, for clearance of input materials and finished parachutes with deviation.

Bulk production of two types of Heavy Drop (HD) parachutes, developed in 2000 and 2009 for Army and Navy could not be commenced due to delayed receipt of drawing/specification, delayed supply of pilot lot by OPF for validation trial and production constraints at sister factory for HD platform system. Army's requirement of Combat Free Fall parachute, developed in 2006, was not fulfilled due to life threatening defects observed in validation trials and non-resolving the quality problems by OPF and ADRDE.

(Paragraph 3.1)

Production of Pinaka Rockets in Ordnance Factories

Pinaka is a multi-barrel rocket launcher system developed by Armament Research & Development Establishment (ARDE), for the Indian Army with a range of 38 km. Production of Pinaka rockets by Ordnance Factories commenced in 2007-08, however, against the Army's indent of 'aa' rockets to be supplied by March 2012. OFB supplied only 'JJ' rockets till March 2014.

Army further placed (October 2013) a five-year-roll-on indent on OFB for supply of rockets in the period from 2014-15 to 2018-19, As per the indent, OFB was required to supply 'ff' rockets to Army till March 2017, but OFB could supply only 'hh' rockets (March 2017).

Audit found that ARDE was yet to finalise the technical document of Pinaka Rocket and transfer the Authority Holding Sealed Particular (AHSP) role to the inspection agency i.e. Controllerate of Quality Assurance (Armament). Further, critical quality problems like excessive short-ranging, bursting of rockets, burning chunks of propellant, etc. were observed during proof firing of Pinaka rockets between March 2011 and July 2016. ARDE stopped production of Pinaka rockets from July 2016 and subsequently Failure Analysis Board (FAB) were constituted twice (July 2016 and April 2017), However, FAB,s in their reports, failed to pinpoint the exact problem in manufacture of Pinaka rockets.

Thus, even after completion of ten years and issue of 'ii' rockets to Army till March 2017, production of the Pinaka rockets has not yet been fully stabilized. Due to stoppage of production and supply to Army, ten lots of finished Pinaka rockets valuing ₹ 217 crore, unfinished Pinaka rockets and its components valuing ₹ 71.36

crore and stores valuing ₹ 189.75 crore were lying at OF Chanda, as of July 2017. The fate of unused inventory relating to Pinaka is dependent on the further directives from ARDE.

(Paragraph 3.2)

Stores-in-Transit between Ordnance Factories

Stores-in-transit (SIT) arise due to non-preparation of receipt vouchers by a factory in respect of stores received from sister factories. In OF Organisation. SIT increased from ₹ 682 crore (March 2013) to ₹ 944 crore (March 2017) which was 15 percent of cost of production of Inter Factory Demand (IFD) items (₹ 6212 crore).

Audit conducted at six factories having maximum SIT (consisting about 49 percent of total SIT as on March 31, 2017) revealed that non-observance of stipulated norms and timeline for inspection and accounting of stores received from sister factories resulted in accumulation of SIT. Main deficiencies leading to SIT were:

- Significant delays in preparation of Material Inward Slip and also in inspection of stores'
- Non-completion of inspection of stores received from sister factories;
- Decision pending on stores rejected in inspection;
- Decision pending on stores rejected in inspection;
- Quantity short received or not properly covered in IFD;
- Non-linking of vouchers by the Accounts Office of the Consignee factories; and
- Fictitious holding of items under SIT due to error in linking/posting in the accounts.

Accumulation of SIT is one of the contributing factors for shortfall in production against annual targets. There was no mechanism for periodical inter-factory reconciliation and physical verification of SIT. Monitoring at the factory level was not effective for time-bound clearance of SIT, with oldest SIT pending since 2005-06 in the selected factories.

(Paragraph 3.3)

Non-commissioning of Nitro Glycerine Plant at Ordnance Factory, Itarsi

Ordnance Factory, Itarsi concluded (April 2008) a contract with a foreign firm for supply and commissioning of Nitro Glycerine (NG) plant on turnkey basis within 20 months. Though the NG plant was delivered by February 2010, the same was yet to be commenced due to various defects observed in pre-commissioning trials. Audit observed that despite inordinate delay in commissioning of new NG Plant by the contractor, Ordnance Factory, Itarsi failed to reject the plant and enforce the contractor to replace the plant at the cost of the contractor as per contractual provision. This had resulted in an idle investment of ₹ 34.43 crore and consequential loss of factory's production capability of Nitro Glycerine, more so when the existing NG Plant had already outlived its life and was facing acute shortage of spares.

(Paragraph 3.4)

Blocking of funds of ₹ 14.30 crore due to non-utilisation of Boiler House

Ordnance Factory Board (OFB) concluded (March 2009) a contract with M/s Israel Military Industries (IMI), Israel for supply of manufacturing plant of Bi-Modular Charge Sysem (BMCS) for Ordnance Factory Nalanda. However, the contract was put on hold by the Ministry of Defence in June 2009 due to illegal gratification by M/s IMI Israel and the contract was finally cancelled in March 2012. Audit observed that despite Ministry's decision to put

on hold the BMCS plant and subsequent cancellation of contract, the Ordnance Factory Nalanda went ahead with construction of Boiler House, intended to generate stream for BMCS plant as per IMI specification. Construction was completed in Novembers 2012 and since then Boiler House remained idle, resulting in blocking of funds to the tune of ₹ 1430 crore.

(Paragraph 3.5)

Report No. 9 of 2018 (Navy and Coast Guard)

OVERVIEW

The total expenditure of the Defence Services, excluding Defence Pensions, during the year 2016-17 was ₹ 2,30,933 crore. Of this, the Indian Navy spent ₹ 37,466 crore while Coast Guard spent ₹ 4,242 crore, which constituted approximately 16 per cent and two per cent respectively of the total Defence Expenditure. The major portion of the expenditure of the Indian Navy is capital in nature, constituting almost 53 per cent of the total expenditure. The expenditure of Coast Guard was distributed between Capital and Revenue Heads amounting to ₹ 2469 crore and ₹ 1773 core respectively.

This report contains major findings arising from the test audit of transactions of the Indian Navy and the Indian Coast Guard. Some of the major findings included in the Report are discussed below.

I. Induction and exploitation of 'A', a Long Range Maritime Reconnaissance Anti –Submarine Warfare aircraft

The Ministry while evaluating the bids for conclusion of contract for the acquisition of 'AA' Long Range Maritime Reconnaissance Anti – Submarine Warfare (LRMRASW) aircraft enhanced the financial bid of M/s EADS CASA, Spain to cater for 20 years product support cost while ignoring this element in respect of M/s Boeing, USA. The contract was concluded with M/s Boeing, USA in January 2009 at MUSD 2,137.54. At a later date, M/s Boeing, USA offered the product support under a separate negotiable contract and consequently the deduced ranking of M/s Boeing, USA as L-1 turned out to be incorrect.

The Ministry concluded (January 2009) an Offset contract for MUSD 641.26 (being 30 per cent of the main contract value) with M/s Boeing, USA. The Offset obligations to tune of MUSD 641.26, to be fulfilled within seven years (August 2016), had not been fulfilled till date. M/s Boeing, USA had claimed Offset credits on mere placement of purchase orders defeating the very purpose of Offset obligations.

II. Training of officers in Indian Navy

Each officer trainee of the Indian Navy undergoes training depending upon the scheme of his or her entry and the branch allocated to the trainee. Indian Navy has 29 training schools/establishments, imparting training to officers. The efficacy and productivity of the Indian Naval Training organisation have a direct bearing on combat readiness and operational effectiveness of Naval platforms/Systems and are crucial enabler to achieve the desired results in combat. The delay in completion of Naval Academy Project, Ezhimala and non-availability of training aids/equipment for new induction platforms have adverse impact on the training being imparted to officers of Indian Navy. No facility exists for training crew on the aspects of Damage Control (DC) and Fire Fighting (FF) of a submarine. Limited practical training is imparted through attachment to the Indian Navy's DC and FF facilities, which is based on ships layout. The mechanism for feedback management and training evaluation is weak. The results of internal assessments of Training Establishments and Weighted Input Output Analysis have brought out various deficiencies in the training imparted.

(Paragraph 2.2)

III. Procurement and utilisation of steel for the refits of Naval ships a Eastern Naval Command

SNM class of Minesweepers based at ENC, Visakhapatnam are built by using non-magnetic U3 steel and their renewals are carried out during refits by ND (V). Non-adoption of scientific approach for working out the requirements coupled with non-consideration of stock position led to excess procurements of U3 steel plates valuing ₹ 86 crore, the utilisation of which looks remote. Preservation of U3 steel plates was not being done as per the approved procedures. There were lapses in accounting procedures being followed at the Naval Dockyard, Visakhapatnam.

(Paragraph 2.3)

The critical role equipment offered by M/s Boeing, USA were not fully meeting the needs of the Indian Navy. Owing to capability limitations of radars installed onboard, the aircraft is not able to achieve the envisaged coverage area requirements. The NSQRs appended to the RFP (December 2005) had envisaged the procurement of torpedoes and 'X' Bombs as the ammunition for Anti-Submarine Warfare (ASW). The Ministry had already intimated (November 2008) the CCS that the weapon integration of LRMRASW ('A') aircraft would, inter alia, include the procurement of 'XX' 'X' Bombs. However, the contract for procurement of 'X' Bombs had not yet been concluded. Reasons for non-procurement of 'X' Bombs (September 2017) were yet to be intimated by Indian Navy. Thus, in the absence of 'X' Bombs, the ASW capability of the aircraft could only be partially fulfilled. One of the primary roles of 'A' aircraft is Anti-Submarine Warfare performed by the acoustic system on board 'A' in association with sonobuoys, which not only provides capability to detect and track submarines accurately but also helps in garnering volumes of acoustic data. The procurement (March 2017) of low range sonobuoys ('P', 'Q' and 'R') for meeting the requirement of Indian Navy for three years, instead of one year's requirement projected by INS 'L' coupled with non-procurement of advanced version sonobuoys with longer range, as recommended by INTEG, adversely impacted ASW surveillance capability of the 'A' fleet, in view of the range limitations of 'P', 'Q' sonobuoys.

There were delays in construction of infrastructure facilities for 'A' squadron. Lack of monitoring by the Apex steering committee as per the prescribed periodicity impacted the implementation of the Offset obligations by M/s Boeing, USA, timely procurement of ammunition and receipt of fully functional sensors.

(Paragraph 2.1)

IV. Non-accrual of intended benefits through nomination of a DPSU shipyard

Ministry concluded a contract (November 2012) with M/s Hindustan Shipyard Limited on nomination basis for construction of six 10 Ton Bollard Pull Tugs based on recommendations of Group of Ministers to ensure sufficient orders to the shipyard. The contractual violation by the shipyard to outsource the work to a private shipyard defeated the very purpose of nomination. Further, due to slow progress, none of the six tugs under the contract has been delivered.

(Paragraph 2.4)

V. Extra expenditure in procurement of Boost Gas Turbines

Boost Gas Turbines (BGT) comprises of the main propulsion plant of ships and is employed onboard for high speed evolution. IHQ MoD (Navy) floated (April 2011) a Request for Proposal (RFP) containing both Option and Repeat Order clauses to the original equipment manufacturer (OEM) M/s Zorya Mashproekt, Ukraine for procurement of eight BGTs. Indian Navy failed to negotiate the inclusion of Option/Repeat Order clause in the contract (October 2013) for the procurement of eight BGTs despite availability of these clauses in the RFP. This resulted in extra expenditure of ₹ 7.04 crore in

subsequent procurement of four BGTs in March 2015, as the benefits of price advantage accruable under these clauses could not be gained.

(Paragraph 2.5)

VI. Deficient contract management in procurement of Naval spares

IHQ MoD(Navy) concluded 11 contracts worth ₹ 80.80 crore with M/s Rosoboronservice (India) Ltd, Mumbai {M/s ROS (I) Mumbai}, for procurement of spares of various systems for deliveries between August 2011 and June 2014. The contracts, inter alia, made it mandatory on the firm to submit a Performance Guarantee by way of Bank Guarantee (PBGs), within 30 days of receipt of the confirmed order. The PBGs were required to be valid up to 60 days beyond the warranty period. The total value of PBGs to be lodged by the firm in respect of these contracts was to the tune of ₹ 8.08 crore (i.e. @ 10 per cent of the contract value). M/s ROS (I) expressed (January 2014) their inability to honour these 11 contracts, owing to major fluctuations in foreign exchange (FE) rates since year 2012-13, coupled with the fact that these contracts did not have any provision of exchange rate variation (ERV). Subsequently, competent financial authority (CFA) approved short closure of these contracts. ERV clause was not included in the contract with M/s ROS (I), being a non-defence public sector undertaking (DPSU) Indian firm and the payment was to be made in Indian currency. The Firm had lodged PBG in respect of only one contract (₹ 1.59 crore), which has also expired. Thus, deficient contract management resulted in non-recovery of ₹ 8.08 crore from M/s Rosoboronservice (India) Ltd, Mumbai for defaulting on 11 contracts.

(Paragraph 2.6)

VII. Inordinate delay in completion of Sewage Treatment Plant

Integrated Headquarters Ministry of Defence (Navy) sanctioned (October 2009) the "Provision of Central Sewage Scheme at Karanja" at ₹ 13.40 crore to be completed within 156 weeks from the date of release of work. Chief Engineer (Navy) Mumbai concluded (December 2010) a contract with M/s Hari Om Projects Pvt Ltd. At ₹ 8.86 crore for works relating to site clearance/excavation, sewage disposal line, water supply, electrification and building /structures together with supply of electro-mechanical equipment including standby generating sets. Later, CE (N) concluded (July 2013) another contract with M/s Fontus Water Pvt. Ltd. At ₹ 5.99 crore for the Sewage Treatment Plant (STP) including all electrical and mechanical equipment and its connected civil works. The infrastructure work, contracted in December 2010 was to be completed by June 23, 2012 and the work relating to STP, contracted in July 2013, was to be completed by January 25, 2015.

Audit noticed that 85 per cent of work amounting to ₹ 4.93 crore was completed (April 2013) against the infrastructure contract (December 2010) and the balance work was kept suspended pending completion of work for the STP. Further, the progress of work relating to STP was only 44.5 per cent (July 2017). Lack of synchronisation in execution of infrastructure work for the STP resulted in idling of an investment of ₹ 4.39 crore for the last four years.

(Paragraph 2.7)

VIII. Unnecessary procurement of Air Conditioning and Refrigeration Plants

Material Organisation, Visakhapatnam placed (March 2015) a purchase order (PO) for air conditioning (AC) and refrigeration plants for Indian Naval Ship (INS) Mahish at ₹ 3.18 crore. IHQ MoD (Navy) had directed HQ ANC on March 5, 2015 to maintain the status quo as INS Mahish was scheduled for Essential Repair and Dry Dock (ERDD) by July 1, 2016, which was to be followed by its decommissioning. However, HQ ANC communicated the decision to MO(V) only on April 1, 2015 i.e. after placement of PO on March 30, 2015. MO(V) also did not take any action to cancel the PO.

Resultantly procurement of equipment worth ₹ 3.18 crore, received in June 2015, was rendered infructuous as the ship (i.e. INS Mahish) for which the plants were required, was decommissioned in November, 2016.

(Paragraph 2.8)

IX. Over provisioning of Ferro Steel plus Weld Electrodes

In spite of a balance of 13,610 Kgs ferro steel plus weld electrodes (electrodes) having shelf life of one year only, Material Organisation, Visakhapatnam procured another 11,200 Kgs electrodes at ₹ 2.78 crore, which was far in excess of their annual requirement. Despite extension of two years in shelf life, these electrodes remained unutilised for over four year since their receipt.

(Paragraph 2.9)

X. Creation of infrastructural facilities in Indian Coast Guard

The Indian Coast Guard (ICG) operational capabilities are reflected in a wide range of ships, aircraft and associated equipment which are required for the Coast Guard to perform its tasks and respond successfully to unforeseen and emergent situations. Adequacy of infrastructure is pivotal for effective usage/exploitation of ICG assets. ICG continues to be plagued with deficiencies of operational infrastructure, which has an adverse impact in the efficacy of ICG operations. Coast Guard Development Plan (CGDP) 2012-17 envisaged setting up of two Coast Guard Air Stations (CGAS) and seven Coast Guard Air Enclaves (CGAE), for effectively carrying out operations. At the end of plan period, despite Government sanction, ICG could not commission these Air Units even after a lapse of 51 to 95 months from the date of sanction. Failure to establish the CGAS and CGAEs is indicative of the fact that necessary ground realties and local constraints had not been taken into account by the ICG while deciding to set up the CGAS and CGAEs at these stations. Inadequacy of berthing facilities and jetties is a cause of concern, as Coast Guard is dependent on various Port Trusts for these assets. The shortages ranged from 27.80 to 76.50 per cent in terms of available length of jetties. Consequently, Ships had to remain on anchorage on many occasions and ICG was constrained to reduce /rebase/shift the vessels and provide the required surveillance cover from other stations. At Mumbai, parking of Air Cushion Vehicles (ACVs) in sunlight led to premature degradation. ACVs meant for basing at Puducherry were actually operated from Mandapam. Making good the deficiencies of the berthing facilities to synchronise with the basing of the ships as per the basing plan of CGHQ, has not been done effectively.

(Paragraph 3.1)

Report No. 13 of 2018 (Defence Services) Army

Executive Summary

This Report contains the results of audit of the transactions for the year ended March 2017 and performance reviews of projects/ schemes of Ministry of Defence pertaining to Army, Department of Defence, Defence Research & Development Organization, Military Engineer Services and Border Road Organization. The report is divided into six Chapters. Chapter I contains the profile of the audited entities, audit methodology, financial aspects, recoveries/ savings and adjustment at the instance of audit etc. Chapter II contains three audit paragraphs on Ministry of Defence; Chapter III contains five audit paragraphs on Army; Chapter IV contains three audit paragraphs and one long paragraph on Works and Military Engineer Services; Chapter V contains one audit paragraph on Border Roads Organisation and Chapter VI contains five audit paragraphs on Defence Research & Development organization. The Significant audit findings as brought out in the Report are summarized as follows:

Chapter I: Introduction

Financial aspects and Budgetary Management

For the financial year 2016-17, the number of Demands for Grants in respect of the Ministry of Defence has been reduced from eight to four. Two Demands for Grants (No. 20 and 21) are included under Civil Grants and two (No. 22 and 23) under Defence Service Estimates (DSE), as follows:

(i) **Civil Grants:** Demand No. 20- MoD (Miscellaneous) and Demand No. 21- MoD(Pensions);

(ii) **Defence Services Estimates (DSE):** Demand No.22- Defence Services- Revenue and Demand No.23- Capital Outlay on Defence Services.

- There has been persistent excess expenditure under Grant 21 for the last five years. During FY 2016-17 also there was an excess of ₹ 2,199.84 crore under this Grant. An amount of ₹ 8,984.78 crore of Pension Payments lying in Public Sector Bank(PSB) Suspense as of March 31, 2017 as per the Finance Accounts for 2016-17 also remained to be booked in FY 2016-17.

- As regards Grant (No. 22 & 23) of Defence Services, share of Revenue expenditure has been increasing over the five years period primarily due to hike in manpower cost of the Armed Forces. The total expenditure on Pay & Allowances registered an increase of 49.64 per cent over the period from 2012-13 to 2016-17.

- The above affected the allocation towards Stores, Works and Modernization. Share of combined expenditure on Stores. Works and Capital expenditure decreased from 59.13 to 53.02 per cent during 2012-13 to 2016-17.

Recoveries/ Savings & Adjustment in Accounts at the instance of Audit

Based on Audit observations, audited entities recovered ₹ 13.95 crore on account of irregular/ excess payment of allowances, sundry charges, training charges, LTC claims, water and electricity charges and savings on account of cancelled irregular works sanctions and indents of ₹ 10.38 crore and adjusted annual accounts to the extent of ₹ 19.17 crore having a net effect of ₹ 43.50 crore during 2016-17.

Chapter-II: Ministry of Defence

Loss due to delay in opening of Letter of Credit

Ministry of Defence (MoD) signed a contract (November 2012) with M/s Rosoboronexport (ROE), Russia for supply of 'A' Missiles at a cost of US$ 232,570,000. Payment up to 85 per cent had to be made through an irrevocable revolving Letter of Credit (LC), to be opened for an initial amount of US$ 59,305,350, within 45 days of receipt of notification from the supplier about readiness for delivery, with grace period of 30 days. In case of delay in opening of LC, MoD had to pay LD at the rate of 0.07 per cent for each day of delay.

MoD opened the LC after a delay of 81 days. It calculated the LD at US$ 9,884,225, basing the calculation on the entire amount of payment to be made through the LC i.e. US$ 197,684,500 and not on the initial amount of LC i.e. US$ 59,305,350. The supplier also delayed the supply for which it had to pay US$ 10,238,661.68 as LD to MoD. The net amount was worked out as US$ 354,436.68, which was recovered by MoD in July 2017. If the initial amount of LC i.e. US$ 59,305,350 was taken into account the LD payable by MoD would be US$ 2,965,267.5 only. MoD should obtain legal opinion on the amount to be reckoned for calculation of LD and raise a supplementary claim on the supplier, if need be, as the difference at the prevailing exchange rate be ₹ 46.16 crore.

(Paragraph 2.1)

Undue benefit to a foreign firm due to non-levy of liquidated damages in the procurement of 23 MM Cartridges

Ministry of Defence (MoD) has signed in October 2005 a protocol with M/s Rosoboronexport (ROE), Russia for supply of armament and military equipment. The protocol states that the liquidated damages (LD) cannot be levied by deduction from the payments to be remitted to the party who has violated the conditions of the contract.

We observed that under the MoD's contract (2006) with ROE, for procurement of 23 MM Cartridges, the supplier was liable to pay LD for late delivery. As the supplies were not completed by the stipulated time MoD signed a Supplement for extension of validity without incorporating the LD provisions. When MoD claimed LD of US$ 1,123,875, it was refuted by the firm stating that the Supplement did not mention of LD. Thus, the omission on the part of the MoD to clearly incorporate the condition of LD in the Supplement, resulted in a disputed claims of US$ 1,123,875 (₹ 4.56 crore) that was pending for over 10 years.

(Paragraph 2.2)

₹ 7.48 crore pending for recovery on account of Old Grant Bungalow being unauthorisedly used as hotel

We noticed that the occupant of an Old Grant Bungalow (OGB) in Ranikhet was operating a hotel in the premises since 1995, without paying the applicable rent. The occupant had applied to Cantonment Board, Ranikhet in 1995 seeking permission to start a Museum-cum-Guest house in the bungalow, on which no decision was taken. In October 2009, the Defence Estate Officer (DEO) Bareilly sent notice to the occupant and in January, 2010, requested Area HQ for resumption of the bungalow but Area HQ wrote back that the onus of taking action rested with the DEO. The DEO had neither computed nor demanded from the occupant ₹ 7.48 crore due from September 1995 to June 2017. Only in July 2017 proceeding were being initiated for eviction and recovery of damages of ₹ 7.48 crore.

(Paragraph 2.3)

Chapter III: Army (Avoidable expenditure)

Director General Armed Forces Medical Services (DGAFMS) had a Rate Contract (RC) with M/s MSD Pharmaceutical for supply of a life saving drug Caspofungin which was due to expire in May 2014. The Notice Inviting Tender (NIT) for a new contract was issued on May 25, 2014, just six days before expiry of old RC. While the technical bids, opened in February 2015, were undergoing evaluation, the DGAFMS on April 13, 2015 purchased 1,628 vials of Caspofungin at the old RC rate of ₹ 9,842.50 per vial, at a total cost of ₹ 160.24 lakh.

The price bids opened on May 15, 2015 showed that another bidder viz. BDR Pharmaceuticals had quoted ₹ 4,141.20 per vial MSD which was much less than ₹ 9,842.50 per vial quoted by MSD Pharmaceuticals. Subsequently, a market survey by DGAFMS revealed that the drug had been procured at ₹ 4,300 in October 2014 by a hospital in Hyderabad. Failure of DGAFMS to ascertain the prevailing market price resulted in extra avoidable expenditure of ₹ 92.82 lakh as the second rate contract was finalized with BDR Pharmaceuticals at ₹ 4,141.20.

(Paragraph 3.1)

Unauthorized provision of Operations cum sand model room

As per Scales of Accommodation (SOA) for Defence Services-2009, the headquarters of the field formations are authorized for specialized accommodation which, inter-alia, includes Operations room, Sand Model room, Central Library cum museum etc. The SOA, however, do not provide for separate Operations room if the formation headquarter is already having an underground

Operations room. The Corps Headquarters at 'D' Cantonment at 'C' was already having underground Operations cum sand model room complex and a library. Despite this, Headquarters Northern Command in March 2011 sanctioned Operations cum sand model room along with conference hall and library for the Corps Headquarters at an estimated cost of ₹ 3.01 crore. Operations cum sand model room and library was constructed at a cost of ₹ 2.95 crore and central air – conditioning at a cost of ₹ 1.15 crore was also provided by the Chief Engineer without the approval of the competent authority.

(Paragraph 3.2)

Delay in development and failure in meeting the user requirements of Unmanned Aerial Vehicles

Unmanned Aerial Vehicles (UAVs) were introduced in the Indian Army in 1998 through the import of Searcher Mark-I from Israel. It was envisaged to procure UAVs being indigenously developed by Defence Research and Develpoment Organisation (DRDO) viz. 'E' numbers of 'AA' UAVs in 11th Plan and 'F' numbers of 'BB' UAVs in 12th Plan beside acquisition of 'G' numbers of 'CC' UAVs through import. We noticed that through 'H' numbers of 'CC' UAVs were procured through import, indigenous UAVs viz. 'AA' and 'BB' could not be inducted in Indian Army due to inordinate delay in their development by DRDO.

Despite incurring an expenditure of ₹ 79.75 crore in procurement of four Unmanned Aerial Vehicles (UAVs) named 'AA' through limited series production, UAVs developed by DRDO failed to meet the users' requirements.

Further, the Development of 'BB'UAV was sanctioned in February 2011 at a total cost of ₹ 1540.74 crore. Delay in development of 'BB' with multiple issues including the airframe, engine, payload and Line Replaceable Units (LRUs) affected the aerial surveillance capability of Indian Army.

(Paragraph 3.3)

Delay in production of electronically upgraded 155mm/45 Calibre Gun Systems "DHANUSH"

Artillery units of Indian Army hold 155mm/ 39 Calibre (towed) guns which were procured through a contract concluded in 1986 with M/s AB Bofors, Sweden. The contract also provided for Transfer of Technology (ToT) for upkeep & overhaul of the guns and for indigenous production of the guns. However, owing to corruption charges a ban was imposed in 1989 by the MoD on dealing with OEM for ten years. Thereafter, the Army pursued procurement of new guns off higher (45/52) Calibre through open global tenders.

The Ordnance Factory Board (OFB), in 2011, offered to produce the gun based on ToT of 1986 with mechanical upgrade up to 45 calibre integrated with modern electronic sub-system which gives it a capability of auto-alignment and fixation resulting in faster engagement of targets. The development undertaken by OFB in 2011 was yet to completely clear the user trials resulting in continued deficiency of modern artillery gun in Army.

(Paragraphs 3.4)

Failure of Auxiliary Power Unit Engines of Artillery Gun

The 155 mm (towed) artillery gun presently held in Artillery units is powered by Auxiliary Power Unit (APU) manufactured by M/s Mercedes Benz. As the engine was no longer being manufactured by the OEM, an indigenous engine manufactured by M/s Force Motors Limited was identified in 2002.

Audit could not ascertain as to how, despite not conducting firing of the gun fitted with new engine in desert and high altitude terrain as per requisite parameters and pending the issue of indigenization of 23 items by the vendor.

Director General of Quality Assurance (DGQA) approved the fitment of engine manufactured by M/s Force

Motors Ltd. in April 2010. Subsequent to supply of 'L' numbers of APU engines in September 2015 at a cost of ₹ 18.60 crore, Artillery units raised defect reports with respect to defective self – starter engine overheating, oil leakage, etc. within the warranty period. Further, based on the high failure rate in field firing in extreme and hot weather (May 2016), the vendor agreed to provide a retro-modification kit. Artillery Directorate was not able to provide Audit the position regarding total number of defective engines held and status of repair indicating absence of internal controls.

(Paragraph 3.5)

Chapter IV: Works and Military Engineer Services

Unfruitful expenditure on Baffle Range

Defence Work Procedure (DWP) - 2007 stipulates that Revised Administrative Approval (RAA) will be essential before tender if there is change in the scope of work due to any reason, irrespective of whether the cost is within the tolerance limit of 10 per cent or not.

MoD, in March 2011, sanctioned for construction of a Baffle Range at Indian Military Academy (IMA), Dehradun for firing training. The work was awarded in December 2012 for ₹ 8.66 crore for completion by February 2015. The tender included drawing for staggered fashion boundary wall but the quantities of the materials for the wall, originally based on straight boundary wall, were erroneously not amended. Within a day of conclusion of the contract, the process for RAA was initiated to incorporate deviations. Thereafter the matter remained under correspondence between various authorities and the work was held up for want of approval of the RAA and the assets created were lying unused as of July 2017. As of March 2017, the physical progress of the work was 91 percent and expenditure of ₹ 7.60 crore had been incurred.

(Paragraph 4.1)

Loss of ₹ 56.17 lakh besides avoidable liability of ₹ 9.27 crore

Ministry of Defence (Ministry) accorded a sanction in March 2003 for construction of accommodation for Infantry Battalion at Suratgarh at a cost at a cost of ₹ 4.86 crore. The main scope of work catered for construction of total 36 structures which included living accommodation, officer mess, storage accommodation, garages etc. However, poor workmanship and inadequate monitoring during execution of work at Suratgarh led to construction of unsafe and substandard buildings thereby warranting their demolition and subsequent reconstruction/ rehabilitation at total estimated cost of ₹ 9.83 crore just after seven years of construction.

(Paragraph 4.2)

Delay in provisioning of air-conditioners denied the ready availability of Missiles to a field formation

Storage accommodation for Missile constructed at a cost of ₹ 2.20 crore in 2008 could not be put up to the desired use due to non-availability of air conditioners. Despite the user requirement, the initiative for provisioning of air conditioners was inordinately delayed and thereby the Field Formation was functioning without holding of Missiles in its Armoury. Given the mountainous terrain, hostile weather conditions and the fact that the area remains cut off from the mainland for more than six months in a year, stocking of the critical ammunition like Missiles at a distant location under inhospitable geographical conditions impairs the operational readiness of the field formation.

(Paragraph 4.3)

Engineer Stores of Engineer Origin-Follow up Audit

Engineer Regiments provide critical mobility support to the armed forces both in war and peace times. Our review, however, indicates persistence of some chronic

issues which, if not addressed, will continue to pose serious challenge to this critical support system for the armed forces. Some of these issues are shortages of stores and spares across the categories, accentuated by delays and inefficiencies in the procurement system that results in an unduly long procurement cycle and consequently the inability to spend the allocated funds. Lack of an automated system created bottlenecks in the two-way flow of information across different parts of the organization and led to inadequate control and monitoring. This resulted in delays in registration of demands for stores and their eventual issue, uneven distribution of stores, and also infructuous expenditure in purchases of unwarranted spares. The delay in initiation/ approval of PRCs and the inability to finalize the purchase proposals in time aggravated the availability of plants and spares.

Non-formulation of five year perspective roll-on plans for repairs and delays in finalization of annual targets delayed provisioning of stores and spares. The non-compliance with the overhaul policy led to a situation where the equipment and plants were pressed into service without the scheduled overhauls, potentially impacting their optimum performance.

In order to address some of the issue mentioned above, MoD should inter alia:

- Consider on-boarding the ESD onto its Computerised Inventory Control Project being rolled out in the Directorate General of Ordnance Services, which deals with inventory management of ordnance stores.
- Strictly enforce the existing provisions for mid-life overhaul of plants and equipment in order to ensure that their performance is optimal.
- Streamline the purchase process to make it accountable and result-oriented.
- Fix the periodicity of the meetings of the purchase committee and make it mandatory for the members to attend it.

(Paragraph 4.4)

Chapter V: Border Roads Organisation

Unfruitful expenditure

Non-adherence to laid down Technical Instructions of Director General of Border Roads (DGBR) regarding work of realignment/construction of roads led to foreclosure of work resulting in unfruitful expenditure of ₹ 15.58 crore in two cases given below:

As per the technical instructions, the hill roads should be constructed much ahead of the construction of permanent bridges. Two sanctions were accorded in 2011 by Director General Border Roads (DGBR) for improvement of a road and construction of a bridge on 'Y-Z' road in State 'V' to facilitate movement of artillery gun carrying vehicle. The bridge work commenced in May 2012 without completing the work of improving the zigs & curves on this road. Border Roads Organization (BRO) in October 2015 initiated foreclosure of the bridge work after expenditure of ₹ 2.27 crore on the ground that it was not required in view of the approval of new alignment of the connecting road, thus, an expenditure of ₹ 2.27 crore became infructuous.

Sanction was accorded in December, 2010 for construction of a Double Lane for re-alignment of a 7 km stretch on National Highway 31 A to avoid major trouble at Mile 27 with problem of sinking area. No consultant/geologist, however, was involved in joint survey before commencement of the work. The work commenced in January, 2012 but during May-August 2013, a large number of slides/ slips took place resulting in huge damages of the executed works. In December, 2014, DGBR proposed to re-survey the alignment & appoint a consultant alongwith a geologist to prepare

a Revised Details Project Report. As of October 2015, the physical progress of the work was 9.36 percent with expenditure of ₹ 9.13 crore, In addition, ₹ 1.14 crore had been paid for compensatory afforestation and ₹ 2.77 crore for land use for the road. In August, 2015, DGBR recommended termination of contract. Thus, expenditure of ₹ 13.31 crore did not serve the intended purpose.

(Paragraph 5.1)

Chapter VI: Defence Research and Development Organization

Loss due to inadequate terms of insurance for imported equipment

Instruments Research & Development Establishment (IRDE), placed a supply order on a foreign firm in August 2012 for purchase of an imported polishing machine at a cost of ₹ 19.68 crore and contracted M/s Balmer Lawrie for shipment of the equipment from England to India. The insurance policy purchased by Balmer Lawrie from Oriental Insurance Company covered the risk of deferred unpacking upto 30 days. The consignment was opened after nearly 3 months and the machine was found beyond economic repairs. The Insurance Surveyor rejected the claim stating that the policy included insurance cover for 30 days period for deferred unpacking only. Action had been initiated to recover the damages from Balmer Lawrie but there was no outcome as of February 2018.

It is recommended that the Procurement Manual procedure should be suitably amended to incorporate clear responsibility for ensuring that high value equipment is covered by an appropriate insurance policy, for monitoring the factors that are critical for insurance claims and for ensuring that those factors are monitored at the appropriate level.

(Paragraph 6.1)

Avoidable Procurement of stores valuing ₹ 6.09 crore for stockpiling

As per general principles of purchase in the Purchase Management Manual, 2006 of Defence Research & Development Organizing (DRDO), all expenditure on purchases will only be need based and stores should not be procured to stockpile in anticipation of future requirements. In two cases, Combat Vehicle Research & Development Establishment procured stores valuing ₹ 6.09 crore for stockpiling citing future utilization. The stores are still held in stock. The stockpiling not only resulted in blocking of government money, but its future utilization is also uncertain.

(Paragraph 6.2)

Unfruitful expenditure of ₹ 13.78 crore in taking up a project without complete test facilities

Defence Research & Development Organization (DRDO) takes up various types of projects for research and development. Test and Evaluation is a continuous process during the development of a system. The availability test facilities is, therefore, of paramount importance for taking up a project.

Research and Development Establishment (Engineers) [R&DE(E)], took up project for Aircraft Arrester Gear (AAG) required to arrest fighter aircrafts 6-40 Ton capacity. The project was closed after incurring expenditure ₹ 11.88 crore, without testing the AAG for its capability, as the adequate testing facilities were not available within the Country, a fact known R&DE(E) even before taking up the project. Thereafter, it also constructs part test facility at a cost of ₹ 1.90 crore, despite knowing that the facility was inadequate to test the AAG at full load capacity and such testing was also hazardous for safety of personnel and infrastructure in the surrounding area. As the AAG could not be tested for 40 Ton load capacity, Centre for Military Airworthiness & Certification (CEMILAC) did not certify the AAG system

for use by the Indian Air Force. Resultantly, the entire expenditure of ₹ 13.78 crore proved unfruitful.

(Paragraph 6.3)

Infructuous expenditure of ₹ 2.31 crore

The Defence Exhibition Organization (DEO) hired 2249.33 sqft of space in Hotel Ashok, New Delhi, in order to shift out of the India Trade Promotion Organization (ITPO) premises at Pragati Maidan. However, after signing the lease agreement in November, 2015, DEO continued to be stationed at old premises due to delay in creating office infrastructure at Hotel Ashok and finally shifted in October 2016. DEO paid rent of ₹ 2.31 crore to Hotel Ashok till September, 2016 (15 months) without occupying the premises.

(Paragraph 6.4)

Unwarranted expenditure of ₹ 14.43 crore on procurement of stores

Purchase Management Manual - 2006 stipulates that in purchasing materials for Government use, the officers/ staff will observe adequate vigilance as a safeguard against infructuous expenditure from public funds and exercise prudence. To ensure this, all expenditure on purchases will only be need –based having immediate use.

In February, 2014, Director General(Artillery) intimated Research Centre Imarat (RCI) that 'N' missile, which was under development by RCI, was not recommended for induction into service. Despite this, RCI placed six supply orders between March, 2014 and July 2015 for stores valuing 14.43 crore, which were received by January 2016. As users had not shown interest in 'N' missile, the project was closed in December 2015. The stores were transferred to RCI inventory/other projects and are since lying unused as of October 2017.

(Paragraph 6.5)

Report No. 14 of 2018 (Air Force)

The total expenditure of the Defence Services during the year 2016-17 was ₹ 2,30,933 crore. Of this, the Indian Air Force (IAF) spent ₹ 55,643 crore which was 24.09 percent of the total expenditure on the Defence Services. The major portion of expenditure of IAF was Capital in nature, constituting 55 percent of their total expenditure.

This Report relates to matters arising from the audit of the financial transaction of Indian Air Force (IAF) and relevant records relating to IAF in the Ministry of Defence (MoD), Defence Accounts Department, Military Engineer Services (MES), Defence Public Sector Undertakings and Defence Research and Development Organisation (DRDO) and its laboratories dedicated primarily to IAF. An amount of ₹ 85.49 crore was recovered after having been pointed out by Audit. Highlights of findings included in the Report are as under:

I. Development of Indigenous Airborne Early Warning and Control System (AEW&CS)

The project for indigenous development of AEW&C System was approved in 2004 at a cost of ₹ 1,800 crore to be completed by 2011. Besides, non-achievement of certain operational requirements specified by IAF, there was time overrun of 70 percent. Selection of Embraer as platform created design constraints and caused delay. The achievement of indigenisation was only about 48 percent of project cost. The project conceived in 2002 is yet to be fully realised leaving gaps in air surveillance capability of IAF.

(Paragraph 2.1)

II. Irregularity in procurement of MiG aircraft Tyres

Faulty tendering process adopted since 2009, ensured that the contract was repeatedly awarded to the same

foreign vendor, despite the vendor supplying defective tyres. IAF is saddled with defective, unusable 3080 MiG tyres from the firm, valuing ₹ 5.92 crore. Faulty RFP was issued as it did not correctly specify the QRs and the price evaluation criteria. Vendors were selected for issue of RFP on pick and choose basis. Indigenistion was foregone to facilitate import of tyres.

(Paragraph 2.2)

III. Contract mismanagement in procurement of Ejection Seats resulted in delay and excess expenditure.

Incorrect objection by Additional Integrated Financial Advisor (AIFA) and resultant delay in opening of Letter of Credit made the vendor cancel the contract. Fresh contract had to be signed at higher rate leading to extra expenditure of ₹ 1.64 crore besides delay of two years in delivery of ejection seats required on priority for operation of 'bb' aircraft.

(Paragraph 2.3)

IV. Irregularity in tendering for repair and overhaul of Mi-17 IV helicopters

IAF unwarrantedly delayed the procurement of Repair and Overhaul (ROH) facility for Mi-17 IV helicopters, Repair and overhaul of the helicopters suffered from severe delays, excess expenditure and monopolization of repair and overhaul of helicopters by the Russian firm. By the time the contract was signed, most of the helicopters were grounded, for want of repair. By not setting up of ROH facility which would have costed about ₹ 196 crore, IAF committed to spend more than ₹ 600 crore by sending the helicopters abroad for repairs.

(Paragraph 2.4)

V. Performance Audit on Operational readiness of IAF airfields

Operational readiness of the airfields is vital for air operations, especially during conflict. Audit found inadequacies in the support facilities at IAF airfields adversely affecting their readiness. These included facilities like restoration of runway after bombing, modernisation of communication systems, safe landing and take-off of aircraft, surveillance of aircraft while in air, refueling of aircraft and handling of armaments to be loaded on the aircraft. GOI implemented a project for Modernisation of Airfield Infrastructure (MAFI) at a cost of ₹ 1220 crore for modernisation of 'kk' number of airfields by 2014. Till date only 'mm' number of airfields were commissioned. There were shortfalls in the equipment to be held by the airfields, which was mainly due to delay in the procurement.

(Paragraph 3)

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APPENDIX-IV

AGE-WISE ANALYSIS OF PENDING AUDIT PARAS

Sl. No.	Year	Details of the Audit Paras on which ATNs are pending as on 31.03.2019			
		No. of ATNs not sent to Audit by the Ministry even for the first time	No. of ATNs sent to Audit for vetting	No. of ATNs sent but returned with observations and Audit is awaiting their resubmission by the Ministry	Total Pending Audit Paras
1	2001	0	0	0	0
2	2003	0	0	0	0
3	2004	0	0	1	1
4	2005	0	0	1	1
5	2006	0	0	0	0
6	2007	0	0	1	1
7	2008	0	0	0	0
8	2009	0	0	1	1
9	2010	0	0	1	1
10	2011	0	1	1	2
11	2012	0	0	0	0
12	2103	0	3	0	3
13	2014	0	0	0	0
14	2015	0	2	2	4
15	2016	0	1	3	4
16	2017	0	4	8	12
17	2018	19	8	8	35
18	2019	1	0	0	1
	Total	**20**	**19**	**27**	**66**

Apache AH-64

INS Ships during field exercise

Prime Minister lays the wreath at
National War Memorial

Prime Minister lights the eternal flame at
National War Memorial near India Gate