

India YEAR Book GO⁺



ASPIRE IAS

The Name Associated with Excellence

Defence

**Foundation PT CUM MAINS
WORK-SHEET**

Part - 12

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Defence

DEFENCE

HELPFUL: PT & MAINS (S&T)



In news:

- India has successfully carried out night user trial of agni-I short-range nuclear-capable ballistic missile.
- The test flight was conducted by Indian Army's Strategic Forces Command off Abdul Kalam Island, formerly known as Wheeler Island, in Bay of Bengal, off the coast of the Indian state of Odisha
- The test was second Known trial of agni-I since its first such successful test in April 2014.

Agni-I Missile:

- Short range nuclear capable surface-to-surface ballistic missile.
- It is first missile of the agni series launched in 1983.
- It was developed by premier missile development laboratory of DRDO in collaboration with Defence Research Development Laboratory and Research Centre Imarat and integrated by Bharat Dynamics Limited, Hyderabad.
- It weighs 12 tonnes and is 15-metre-long.

- It is designed to carry payload of more than one tonne (both conventional and nuclear warhead).
- It is single stage missile powered by solid propellents.
- It can hit a target 700 km away.
- its strike range can be extended by reducing the payload.
- It can be fired from road and rail mobile launchers.
- It is equipped with sophisticated navigation system which ensures it reaches the target with a high degree of accuracy and precision.
- The missile already has been inducted into armed forces. since its induction it has proved its excellent performance in terms of range, accuracy and lethality.
- It is also claimed to be a part of India's minimum credible deterrence under No first to use policy.

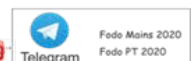
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FORMIDABLE ARSENAL

SURFACE-TO-SURFACE MISSILES

Short Range Ballistic Missiles

Prithvi-I	150 km	1,000 kg
Prithvi-II	250 km	500 kg
Prithvi-III	350 km	1,000 kg
Dhanush	350 km	1,000 kg
Agni-I	700 km	1,000 kg
Shaurya	700 km	1,000 kg
Prahaar	150 km	200 kg

Intermediate Range Ballistic Missiles (IRBMs)

Agni-II	2,000 km	1,000 kg
Agni-III	3,000 km	2,000-2,500 kg
Agni-IV	4,000 km	1,000 kg

Intercontinental Range Ballistic Missiles (ICBMs)

Agni -V	5,000 km	1,500 kg ((3-10 MIRV))
Agni-VI (Under Development)	6,000 km	1,000 kg (10 MIRV)
Surya (Under Development)	10,000 km	1,000 kg (10 MIRV)

Km denotes the range of the missile and kg is the payload

SUBMARINE LAUNCHED BALLISTIC MISSILES

K-15 Sagarika (B-05)	750 km	500 kg
K-4	3,000 km	1,000 kg



CRUISE MISSILES

Subsonic Cruise Missiles

Nirbhay	750-1,000 km	500 kg
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Supersonic Cruise Missiles

BrahMos	290 km	300 kg
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Hypersonic Cruise Missiles

BrahMos-II	290 km	300 kg
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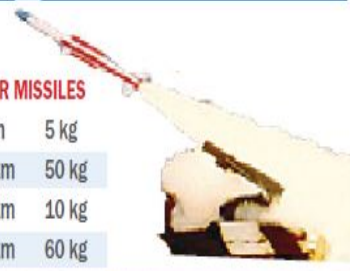
AIR-TO-AIR MISSILE

Astra	80-110 km	15kg
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SHORT RANGE SURFACE-TO-AIR MISSILES

Trishul	9 km	5 kg
Akash	30 km	50 kg
Maitri	15 km	10 kg
Barak-8	70 km	60 kg



ANTI-TANK GUIDED MISSILES

Nag Anti-tank guided missile	7 km	8 kg
Hellna (Helicopter launched Nag missile)	7 km	8 kg

ANTI-BALLISTIC MISSILES

Prithvi Air Defence Missile (Exo-atmospheric at 50-80 km altitude)	2,000 km	DM (Proximity)
Advanced Air Defence Missile (Endo-atmospheric at 15-30 km altitude)	150-200 km	DM (Hit-to-kill)
Prithvi Defence Vehicle (Exo-atmospheric at more than 120 km altitude)	2,000-3,000 km	DM (Proximity)

DM: Detonation Mechanism

Compiled by Hemant Kumar Rout

The Integrated Guided Missile Development Programme, now known better by its abbreviation IGMDP, is perhaps the first programme in India which brought together a large number of R&D laboratories, government departments, industries and academic institutions in the country within an integrated structure involving all the groups in a functional network. The Programme was visionary and ambitious, aiming at the same time, deliveries to the Services as the end goal in a reasonable time frame.

The Integrated Guided Missile Development Programme (IGMDP) was an Indian Ministry of Defence programme for the research and

development of the comprehensive range of missiles. The programme was managed by the Defence Research and Development Organisation (DRDO) and Ordnance Factories Board in partnership with other Indian government political organisations. The project started in 1982–83 with popular political support from the successive governments and bestowed under the leadership of Abdul Kalam who oversaw its ending in 2008 after these strategic missiles were successfully developed.

On 8 January 2008, the DRDO formally announced the successful completion of the IGMDP. It added that the strategic integrated guided missile programme was completed with

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its design objectives achieved since most of the missiles in the programme had been developed and inducted by the Indian armed forces.

By the start of the 1980s, the DRDL had developed competence and expertise in the fields of propulsion, navigation and manufacture of aerospace materials based on the Soviet rocketry technologies. *Thus, India's political leadership, which included Prime Minister Indira Gandhi, Defence Minister R. Venkataraman, V.S. Arunachalam (Political Advisor to the Defence Minister), decided that all these technologies should be consolidated.*

This led to the birth of the Integrated Guided Missile Development Programme with Dr. Abdul Kalam, who had previously been the project director for the SLV-3 programme at ISRO, was inducted as the DRDL Director in 1983 to conceive and lead it. While the scientists proposed the development of each missile consecutively, the Defence Minister R. Venkataraman asked them to reconsider and develop all the missiles simultaneously. Thus, four projects, to be pursued concurrently, were born under the IGMDP:

Short range surface-to-surface missile (code-named Prithvi)

Short range low-level surface-to-air missile (code-named Trishul)

Medium range surface-to-air missile (code-named Akash) and

Third-generation anti-tank missile (code-named Nag).

The Agni missile was initially conceived in the IGMDP as a technology demonstrator project in the form of a re-entry vehicle, and was later upgraded to a ballistic missile with different ranges. As part of this program, the Interim Test Range at Balasore in Orissa was also developed for missile testing.

TIME-LINE

1. Prithvi I

Prithvi I was one of the first missiles developed under Government of India's IGMDP. Launched in February 1988, Prithvi I is a single-stage, liquid-fuelled missile. A surface-to-surface missile, it has a range of 150 km and a mounting capability of 1000 kg. It was inducted into the Indian Army in 1994.

2. Agni I

A nuclear-capable ballistic missile, Agni 1 is the first of the five-missile Agni series launched in 1983 by the Defence Research and Development Organisation. It has a range of 700 km.

3. Akash

Akash is a surface-to-air missile with an intercept range of 30 km. It has multi-target engagement capability and is in operational service with the Indian Army and the Indian Air Force.

4. Nag

Nag is a third-generation hit-to-kill anti-tank missile that was first tested in 1990. The two-stage solid propellant weapon uses the lock-on before launch system where the target is identified and designated before the weapon is launched.

5. Trishul

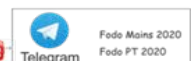
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Trishul is a short-range surface-to-air missile equipped with electronic measures against all known aircraft jammers. It has a range of 9 km and is used as anti-sea skimmer from ships against low-flying attacks.

6. Agni II

An intermediate-range ballistic missile, the Agni-II was first test fired on April 11, 1999. The surface-to-surface missile has a range of 2000 to 2500 km and can carry conventional or nuclear warheads.

7. Prithvi III

Prithvi III is the naval-version missile with a range of 350 km. A two-stage surface-to-surface missile, Prithvi III was first tested in 2000.

8. Brahmos

BrahMos is a supersonic cruise missile that is first test-fired on June 12, 2001. It was developed as a joint venture between India and Russia and is the world's fastest anti-ship cruise missile in operation.

9. Prithvi Air Defence (PAD)

India's ballistic missile defence got a fillip with the development of PAD, which has been given the moniker Pradyumna. The system was tested with a maximum interception altitude of 80 km, and has been designed to neutralise missiles within a range of 300-2000 km up to a speed of Mach 5.0. The technology employed in the PAD was the precursor to the indigenously developed Advanced Air Defence (AAD) interceptor missile which was tested in 2007, as well as the Barak-2 which was developed in collaboration with Israel.

10. K-15 Sagarika

The successful test of the Sagarika marks an inflection point in India's military history. It forms the crucial third leg of India's nuclear deterrent vis-à-vis its submarine-launched ballistic missile (SLBM) capability. The K-15 Sagarika, which has a range of 750 km, was successfully tested in February 2008, and was subsequently integrated with India's nuclear-powered Arihant class submarine.

11. Dhanush

Dhanush is a liquid propelled sea-based missile that was envisaged as a short-range version of the Prithvi II ballistic missile. It has a range of 350 km and is capable of carrying nuclear warheads. It was successfully test-fired from a naval warship in March 2011, and carries forward the legacy of the K-15 Sagarika.

12. Agni III

Agni III is an intermediate-range ballistic missile developed as the successor to the Agni II. It is an improvement over its previous iteration, and has a range of 3,500-5,000 km, making it capable of engaging targets deep inside neighbouring countries. It was inducted in to the armed forces in June 2011, enhancing its strike capability.

13. Agni IV

Carrying forward the success of its predecessor, the Agni III was developed to strike targets within a similar range but with a significantly shorter flight time of 20 minutes. The Agni IV, which has a two-phase propulsion system is designed to carry a 1,000 kg payload.

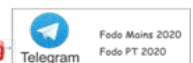
14. Shaurya

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It was initially conceived as a surface-to-surface ballistic missile (SSM) variant of the K-15 Sagarika, that can be stored in underground silos for extended periods and launched using gas canisters as a trigger. The nuclear capability of the missile enhances India's second strike capability reduces the dependence on the K-15 ballistic missile which was built with significant Russian assistance.

15. Nirbhay

Nirbhay is a subsonic missile which is ancillary to the BrahMos range. It uses a terrain-following navigation system to reach up to 1,000 km. Nirbhay is capable of being launched from multiple platforms on land, sea, and air.

16. Prahaar

Prahaar is a surface-to-surface missile with a range of 150 km that was successfully tested for the first time in July 2011. Stated to be a unique missile, the Prahaarboasts of high maneuverability, acceleration and accuracy. Primarily a battlefield support system for the Army, the missile can be fired from a road mobile launchers and is extremely mobile in battle situations owing to its lighter build.

17. Astra

Astra is a beyond-visual-range (BVR) air-to-air missile (AAM) that was tested successfully in May 2011. In terms of size and weight, the Astra is the smallest missile developed by the DRDO. It was envisaged to intercept and destroy enemy aircraft at supersonic speeds in the head-on mode within a range of 80 km.

18. Agni V

Agni is India's first inter-continental ballistic missile (ICBM), with high road mobility, fast-reaction ability and a strike range of over 5,000 km.

Hurdle

After India test-fired the first Prithvi missile in 1988, and the Agni missile in 1989, the Missile Technology Control Regime (then an informal grouping established in 1987 by Canada, France, Germany, Italy, Japan, the United Kingdom and the United States) decided to restrict access to any technology that would help India in its missile development program. To counter the MTCR, the IGMDP team formed a consortium of DRDO laboratories, industries and academic institutions to build these sub-systems, components and materials. Though this slowed down the progress of the program, India successfully developed indigenously all the restricted components denied to it by the MTCR.

MTCR

MTCR is the acronym for Missile Technology and Control Regime. MTCR was recently in the news as India got membership in the group (contrary to NSG where India was denied membership).

Benefit to India?

India has joined MTCR as a full member and also agreed to join the Hague Code of conduct made it bolster its position as a responsible nuclear state and strengthen its case for the membership of other multilateral export control regimes like

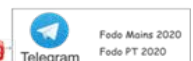
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Nuclear Suppliers Group, Australia Group, and Wassenaar arrangement.

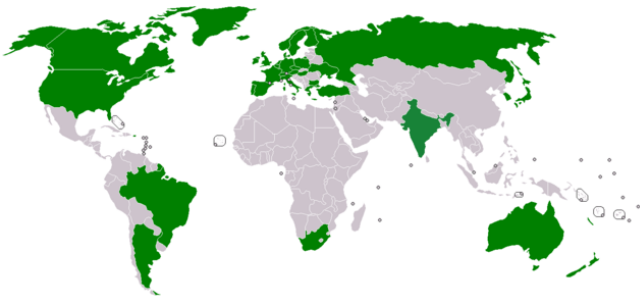
India can buy high-end missile technology and run joint programmes for development of unmanned aerial vehicles with other countries. eg. Procurement of theater missile interceptor “Arrow II” from Israel, military drones like “Avenger” from the USA etc.

India can sell its missiles to other non-member countries with comparative ease. eg. Supersonic cruise missile, “BrahMos”, to Vietnam.

ISRO can access the forbidden cryogenic technology from Russia which is required for the space exploration operations.

MTCR membership can be used as a bargaining chip against China which is not a full member of the regime and aspiring to be one as it has blocked India’s way to NSG.

About MTCR



It is a multilateral, consensus – based grouping of 35 member countries who are voluntarily committed to the non-proliferation of missiles capable of carrying chemical, biological and nuclear weapons of mass destruction (WMDs).

It controls the export of the technologies and materials involved in ballistic missile systems and unmanned aerial vehicles particularly capable of carrying nuclear warheads of above 500kg payload for more than 300 km.

This is a non–treaty association of member countries with certain guidelines about the information sharing, national control laws and export policies for missile systems and a rule-based regulation mechanism to limit the transfer of such critical technologies of these missile systems.

Rules

It was established in April 1987 by G-7 countries – USA, UK, France, Germany, Canada, Italy, and Japan, to check the spread of unmanned delivery systems capable of carrying nuclear weapons of above 500kg for more than 300km. In 1992, it was extended for all types of weapons of mass destruction.

Now, it has 35 full members including India and 4 “non-adherent members” – Israel, Macedonia, Romania, Slovakia.

China is not a member of this regime but it had verbally pledged to adhere to its original guidelines but not to the subsequent additions.

These efforts of non-proliferation of ballistic missile systems had further been strengthened by “The International Code of Conduct against Ballistic Missile Proliferation”, also known as the Hague Code of Conduct (HCOC), which was established on 25 November 2002 as an arrangement to prevent the proliferation of

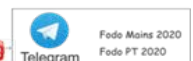
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ballistic missiles with 136 UN member countries including India.

Analysis

Positive: It has significantly contributed to curbing or slow down the nuclear programmes of some countries.

Argentina dropped its joint ballistic missile programme" Condor II" with Egypt and Iraq.

Poland and the Czech Republic vanished their ballistic missiles in an effort to join the regime.

Brazil, South Africa, South Korea, and Taiwan also withdrew or curbed their missiles or space launch vehicle programs.

Recently, it played a major role to hamper Libyan and Syrian missile efforts.

Negative: It is not a legally-binding treaty. Hence, no punitive measures could be taken against non-compliance to the guidelines of the regime.

It has only 35 member countries as full members. Whereas, countries like North Korea, Pakistan, Iran which have significant missile systems which could deliver WMDs, are not adherent to the regime.

Some of such countries are exploring long – range intercontinental missiles and they are also sellers in the arms market.

There are incidences of violation of the rules by MTCR countries. In 2007, China secretly sold solid-fuel, medium-range ballistic missiles," DF 21", to Saudi Arabia. France sold the Storm Shadow/SCALP cruise missile to the UAE (Black Shaheen) in the 1990s.

The USA had bent some rules to give concessions to some Non -member countries aspiring to join the regime. Eg. Ukraine was allowed to retain its Scud missiles irrespective of the rule of destroying ballistic missiles (capable of carrying a 500kg payload for 300km) for the non-recognised nuclear state. Similarly, USA also allowed South Korea to develop ballistic missiles of the range of 800 kilometers with a 500-kilogram payload.

With a technological advancement, it is also possible to adapt and develop the existing missiles with a range shorter than 300km and carrying WMDs less than 500kgs to escape the regulations imposed by the regime.

Limitation for India

MTCR membership does not guarantee any special technological entitlement from other members or adherent countries.

India needs to align its national laws dealing with development, transfer, and procurement of the nuclear technologies and export policies as per the guidelines of the MTCR regime which could be stricter and stringent as compared to the existing ones and likely to have implications for the stakeholders.

It is unlikely to give an immediate boost to the export of the India missiles.

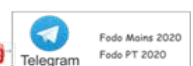
India being a member of the regime will have some obligations like sharing critical information about its military and technological assets, consulting other member countries regarding the export of any MTCR items, especially those notified or denied by another partner.

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BENEFITS:

Benefit to ISRO: During the cold war years, Russia denied cryogenic technology to India. However, in a welcome change ISRO will now have access to restricted high-end technologies for developing its cryogenic engines in order to enhance space exploration.

Sale of BrahMos: India will be able to sell the Indo-Russian supersonic cruise missile BrahMos to Vietnam and other countries in a development that would make India a significant arms exporter.

Procurement of Israel's Arrow II missile: In its bid to develop indigenous Ballistic Missile System, India wanted to procure Arrow II theatre missile defence interceptor from Israel but was denied due to the MTCR sanctions. The newly-forged membership will help India in the procurement of Arrow II, which will further help India defend itself against Pakistani or Chinese ballistic missiles.

Buying surveillance drones: India will be able to

buy surveillance drones from other countries like the American Predator drones (e.g. the Avenger drone). The US might also consider exporting UAVs, Reaper and Global Hawk, which have been key to counter-terrorism efforts in countries like Afghanistan, Pakistan and Yemen.

Boost to Make in India: Indian technology that will be developed or made under the flagship of Make in India will see free movement out of the country, which in turn will contribute to the success of the programme.

Step closer to NSG: The accession to MTCR is one step closer to India's membership to the 48-member NSG (Nuclear Suppliers Group). It also gives India a chance to engage with other global non-proliferation players.

One-upping China: Significantly, China, which opposed India's entry into the Nuclear Suppliers Group at the just-concluded Seoul plenary, is not a member of 34-nation MTCR.

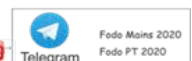
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AN EYE ON NEIGHBOURS		
 INDIA	 PAKISTAN	 CHINA
Agni-V Ballistic, Range: +5,000 km, Warhead: 1,000Kg	Half-2/Abadali Range: 180-200 km, Warhead: 250-450 Kg	 DF-II/M-11 Range: 384 km, Payload: 1,000 Kg
Prithvi-II Ballistic, Range: 350 km, Warhead: 500-1,000 kg	Half-3/Ghaznavi Range: 290 km, Warhead: 700 Kg	DF-15/M-9 Range: 280 km, Payload: 700 Kg
 BrahMos Cruise, Range: 290 km, Warhead: 200-300 kg	Half-4/Shahen-1 Range: 750 km, Warhead: 700 Kg	DF-21/JL-1 Range: 3,000 km, Payload: 700 Kg
 K-4 SLBM, Range: 3,500 km	 Half-5/Ghauri-1 Range: 1,300-1,800 km, Warhead: 1,200 Kg	DF-21/JL-1 Range: 3,000 km, Payload: 700 Kg
	Half-6/Shahen-2 Range: 2,500 km, Warhead: 700 Kg	 DF-31/JL-2 Range: 7,200 km, Payload: 1,400 Kg
		DF-41 Range: 12,000 km, Payload: MIRV

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Defence Procurement Policy

Defence Procurement Procedure (DPP)-2016, which has come into effect from April 2016, focuses on institutionalising, streamlining and simplifying defence procurement procedure to give a boost to “Make in India” initiative of the Government of India, by promoting indigenous design, development and manufacturing of defence equipment, platforms, systems and sub-systems. The key features of revised DPP, promoting ‘Make in India’ inter alia include:-

- A new category of procurement ‘Buy {Indian-IDDM (Indigenously Designed, Developed and Manufactured)}’ has been introduced in Defence Procurement Procedure-2016 and the same has been accorded top most priority for procurement of capital equipment.
- Preference has been accorded to ‘Buy (Indian)’ and ‘Buy and Make (Indian)’ categories of capital acquisition over ‘Buy (Global)’ & ‘Buy & Make (Global)’ categories.
- Requirement of Indigenous content has been enhanced / rationalised for various categories of capital acquisition.
- The ‘Make’ Procedure has been simplified with provisions for funding of 90 % of development cost by the government to Indian industry and reserving projects not exceeding development cost

of Rs. 10 crore (government funded) and Rs. 3 crore (industry funded) for MSMEs.

The following achievement has been made by the Government under this programme:-

- Defence Acquisition Council (DAC) accorded approval of 136 capital procurement cases at an estimated cost of Rs. 4,00,714/- crore during the last two financial years (2014-15 and 2015-16) and current year 2016-17 (upto January 2017), out of which 96 cases involving Rs. 2,46,417/- crore are under the ‘Buy (Indian-IDDM)’, ‘Buy (Indian)’, ‘Buy & Make (Indian)’, ‘Make’ categories.
- 141 contracts with total value of Rs. 2,00,010/- Crore (approx.) were signed during the last two financial years (2014-15 and 2015-16) and current year 2016-17 (upto December 2016), out of which 90 contracts involving a value of Rs. 83,344/- crore (Approx) were signed with Indian vendors.
- Capital expenditure of Rs. 1,75,420/- Crore (approx.) was incurred on purchase of defence items for Armed forces during the last two financial years (2014-15 and 2015-16) and current year 2016-17 (upto December 2016), out of which of Capital expenditure of Rs. 1,05,030/- Crore (approx.) was incurred on purchase from Indian vendors.

The responsibility of quality assurance of raw material used in defence products rests with

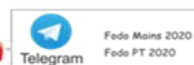
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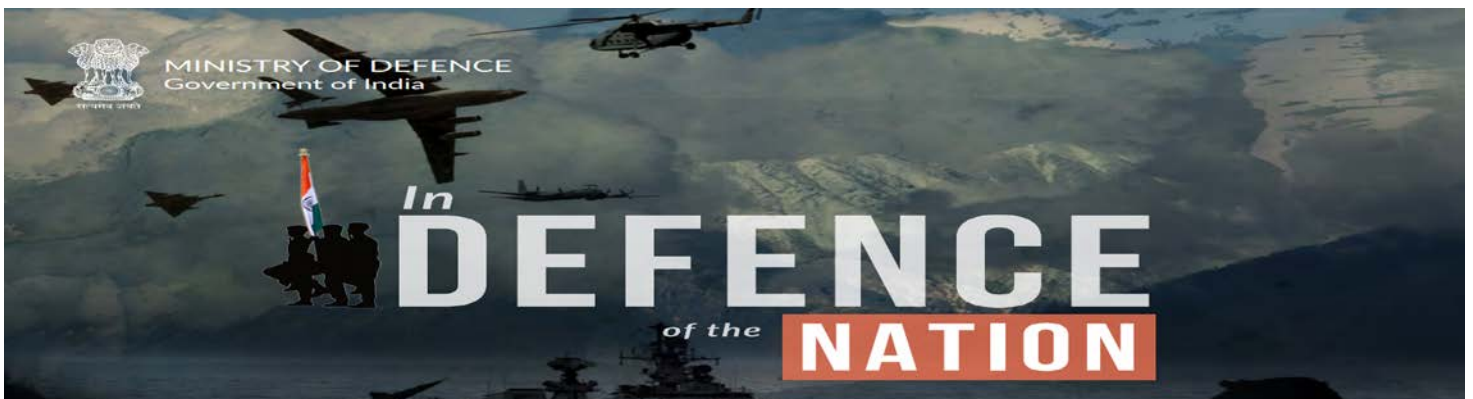
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Organizations such as Ordnance Factory Board (OFB), Defence Public Sector Undertakings (DPSUs), Directorate General of Quality Assurance (DGQA), etc. At present, there is no proposal to open any new lab in the country to check / investigate the defence products. However DGQA, DRDO, OFB, DPSUs and Armed forces already have their own laboratories or test facilities at various locations

across the country to check / investigate the defence products.

DEFENCE



Introduction

- India Defense force comprising of Army, Navy and the Air Force is responsible for defending the country's borders as defined by law and enshrined in the Constitution.
- The history of India Defense can be traced to the emergence of civilization when for the first time the need to defend the inhabited territory gained significant importance. To begin with, the groups within the community took the responsibility of safeguarding their area amongst themselves. Later with the emergence

of kingdoms the concept of army was introduced which was gradually developed further.

- The present structure of India defense is based on the system introduced by the British during their colonial stay.
- INDIA'S landmass covers an area of 3.3 million sq. kms. and is strategically located vis-a-vis both continental Asia and the Indian Ocean Region (IOR).
- Land borders extending more than 15,500 kms. and a coastline totalling over 7500 kilometers

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India YEAR Book GO⁺

Defence

make India a continental or maritime neighbour of 11 countries in Asia.

- The island territories of the Andaman and Nicobar Islands, located 1,300 kms. away from the mainland in the Bay of Bengal, provide India with a strategic presence at the entrance to the Strait of Malacca, through which more than 60,000 shipping vessels transit each year.
- The Lakshadweep and Minicoy Islands, located about 450 kms. away from the mainland in the Arabian Sea, sit astride the sea lanes of communication running eastward from the Persian Gulf and the Red Sea.
- The island territories along with a long coastline extend India's territorial waters to more than 160,000 sq. kms. and the Exclusive Economic Zone (EEZ) to more than two million square kilometers. India is, thus a maritime as well as a continental entity.
- The activities of terrorist groups, the menace of drug trafficking, the spread of small arms, the proliferation of weapons of mass destruction and the challenges to maritime security in the immediate and extended neighborhood are some of the critical factors that affect India's security environment.
- India has important political, economic, commercial and social interests in the Asia Pacific and has a stake in continued peace and stability in the region.
- India supports freedom of navigation in international waters and the right of passage, in accordance with International law.

- India's view is that all countries must exercise restraint and resolve bilateral issues diplomatically, according to principles of International law and without recourse to the use or threat of use of force.

The Regional Security Environment

India is committed to build an open and dialogue based security co-operation with all partners in the neighborhood on the basis of **equality, mutual benefit** and **mutual respect**.

1. Afghanistan

The present political transition in the country is a significant milestone for Afghanistan with renewed opportunities for an Afghan-led and Afghan-owned national reconciliation process. The **Strategic Partnership Agreement** between India and Afghanistan provides the framework for the commitment of both countries to build the bilateral relationship in all spheres, including through defence and security cooperation aimed at enhancing mutual capacity in the fight against terrorism and other security challenges.

2. Pakistan

The expanding footprints of extremist and terrorist organizations in Pakistan and their linkages with terrorist activities in Jammu and Kashmir and rest of India poses a major security challenge to India, with severe ramifications on bilateral relations, as well as to the peace and security of the region. India remains committed to resolving all outstanding issues with Pakistan through a peaceful, bilateral dialogue on the basis of the **Simla Agreement** and **Lahore Declaration**.

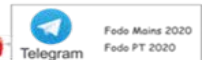
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During the meeting of the DGMOs of both countries at Wagah in December 5, 2013, India reiterated the need for Pakistan to uphold the sanctity of the Line of Control (LoC) and International Boundary in Jammu and Kashmir by stopping ceasefire violations and cross IB and cross LoC transgressions.

Pakistan has continued with its policy of **selective approach** to tackling terrorist groups operating from its territory and areas under its control which do not serve the interests of regional peace and security

Recent development (Summary)

India- Pak.

India, Pakistan fail to break deadlock on talks

The much-anticipated talks between the Indian and Pakistani Foreign Secretaries on failed to make headway on the Comprehensive Bilateral Dialogue, with both sides trading allegations.

“Foreign Secretary S. Jaishankar conveyed that Pakistan cannot be in denial on the impact of terrorism on the bilateral relationship. Terrorist groups based in Pakistan targeting India must not be allowed to operate with impunity,” a senior official of the Ministry of External Affairs told The Hindu after the nearly two-hour meeting on the sidelines of the Heart of Asia Senior Officials Meeting.

The Pakistan delegation, led by Foreign

Secretary Aizaz Ahmad Chaudhry, alleged that Indian intelligence agencies were responsible for the unrest in Balochistan, and Mr. Jaishankar “firmly rebutted” the charge.

Issues of terrorism and Kashmir kept both sides from taking a common position and there was no joint statement at the end of the meeting. While Pakistan supported the CBD, India made no mention of the dialogue process.

“India’s Foreign Secretary emphasised the need for early and visible progress on the Pathankot terrorist attack investigation as well as the Mumbai case trial in Pakistan,” said a source after the meeting. The strongest comment, however, was made by Pakistan when the visiting Foreign Secretary described Kashmir as the “core issue”, echoing Pakistan’s traditional position on the dispute.

Pakistan’s Foreign Secretary conveyed his country’s concern about developments in the Samjhauta Express blasts case. “The Foreign Secretary also conveyed concerns over the environment being created in India for the release of the prime suspects of the Samjhauta Express blasts. He further pointed out that, despite repeated requests, India has not shared investigation reports in which 42 Pakistanis lost their

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Defence

lives,” said an official of the Pakistan High Commission.

Pradesh. The outlay plan for the upgradation of ALGs alone is nearly Rs. 1,000 crore.

3. China

Although the unresolved boundary dispute between India and China is a major factor in India's security calculus, India has engaged with China on the principle of mutual respect and sensitivity for each other's interests, concerns and aspiration and mutual and equal security.

India remains conscious and watchful of the implication of China's increasing military profile in our immediate and extended neighborhood, as well as the development of strategic infrastructure by China in the border areas.

Recent development (Summary)

India-China

IAF reactivates two landing grounds in Arunachal Pradesh

Boosting the nation's rapid airlift capability for forward operations and troop deployment, the Indian Air Force re-activated two upgraded Advanced Landing Grounds (ALG) at Ziro and Along in Arunachal Pradesh.

This will give the ability to rapidly airlift troops in case of hostilities or a standoff. India has belatedly embarked on a major drive to operationalise the ALGs which have not been in use for decades.

The ALGs for upgradation include **Tuting, Mechuka, Along, Tawang, Ziro, Pasighat, Walong and Vijaynagar** in Arunachal

4. Bhutan

India has been the privileged socio-economic partner of Bhutan since 1961. Today, there is extensive cooperation between the two countries in all areas including in the area of trade and economy including hydropower, defence and security, as also people-to-people level linkages.

5. Nepal

External influence on Nepal, the demography along the India-Nepal border and possible exploitation of porosity of the India-Nepal border by terrorists sponsored by our adversaries, are some of the issues that India is concerned about and will have to monitor closely.

At the same time, it will have to be kept in mind that the 1950 Treaty provides for an open border and is a major asset that is a cornerstone of India-Nepal friendship. Security cooperation between India and Nepal is proceeding well, owing to enhanced assistance in the form of training and equipment supply.

6. Bangladesh

Cooperative relations between India and Bangladesh continued to be a positive factor in the regional security scenario. Both countries share a convergence of views on security matters and on managing border security concerns. Bilateral efforts are being pursued for the settlement of border issues. Both sides have on various occasions

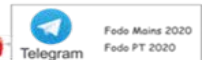
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reiterated their commitment to combat terrorism on all its forms and manifestations.

Recent development (Summary)

India-Bangladesh

India-Bangladesh drill in Sundarbans

In an attempt to bring in more synergy in coordinated border management, border-guarding forces of Bangladesh and India conducted their first-ever joint exercise in the riverine borders of the Sundarbans.

The exercise between the Border Security Force (BSF) and the Border Guard Bangladesh (BGB) commenced with troopers, including dog and bomb squads, from both the forces carrying out joint searches of cargo vessels on the Ichamati river.

The second day of the drill called 'Sundarbans Maithri' on Sunday was supervised by Inspector General, South Bengal frontier, Sandeep Salunkhe, Colonel Khandekar Farid Hassan, Region Commander BGB onboard the floating border outpost (BOP) Kamakhya.

7. Myanmar

Myanmar is located on crossroads of South and South-East Asia and is India's land bridge to the South-East Asian countries. India continues to engage with Myanmar on various fronts, including trade and infrastructure and cooperation in security matters. Both countries are engaged in

efforts to maintain stability on the borders through a number of measures being pursued under the umbrella of multi-tiered mechanisms at the local, regional and national level. The Myanmar leadership has conveyed its assurances that it will not allow its territory to be used for activities inimical to India.

8. Sri Lanka

Relations between India and Sri Lanka are based on shared cultural, religious, linguistic and historical ties and remain cooperative and constructive. India continues to remain engaged with Sri Lanka to achieve a lasting political settlement that meets the aspiration of the Tamil community for equality, justice, peace and dignity. Both countries are pursuing efforts to enhance bilateral cooperation in a range of areas, including defence and security.

The commonality of regional maritime security challenges is the foundation for the **trilateral defence and security cooperation** framework through which **India, Sri Lanka and Maldives** are working to develop joint capabilities to respond to a variety of maritime challenges. The initiative enables the defence and security establishments and the Armed Forces of all three countries to pursue practical cooperation on a regular basis. It is expected that the initiative which acknowledges India's role as the net provider of security in the Indian Ocean neighbourhood will contribute to the development of a cooperative vision of security in the region.

Who is responsible for Defence of India?

The government of India is responsible for ensuring the defence of India. The Supreme command of

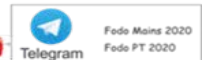
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Armed forces vests in the President of India. **The responsibility for defence of the country rests with the Cabinet.** This is discharged through Ministry of Defence, which provides the policy framework and wherewithal to the Armed forces to discharge their responsibilities for defence of the country.

Ministry of Defence

The primary task of the Ministry of Defence is to prepare for Defence of the country by providing required infrastructure, adequate trained manpower and Defence equipment and platforms to the armed forces.

<p>DEPARTMENT OF DEFENCE</p> <p>(DoD)</p> <ul style="list-style-type: none"> ➤ Defence of India ➤ Defence Perspective Planning, Policy and Strategy ➤ International Defence Cooperation 	<p>DEPARTMENT OF DEFENCE PRODUCTION</p> <p>(DDP)</p> <ul style="list-style-type: none"> ➤ Indigenisation, development and production of defence equipment and participation of the private sector in the manufacture of defence equipment ➤ Defence exports
---	--

<p>DEPARTMENT OF DEFENCE RESEARCH & DEVELOPMENT</p> <p>(DDR&D)</p> <ul style="list-style-type: none"> ➤ Formulation and execution of programmes of scientific research, design, development, test and evaluation, in relevant fields of national security ➤ Scientific aspects of military equipment and logistics and the formulation of research, design and development plans for equipment required by the Services 	<p>DEPARTMENT OF EX-SERVICEMEN WELFARE</p> <p>(DESW)</p> <ul style="list-style-type: none"> ➤ Welfare and resettlement of Armed Forces Veterans (Ex-Servicemen) including pensioners
--	--

(i) **The Department of Defence** deals with the Integrated Defence Staff (IDS) and three Services and various Inter Service Organizations. It is also responsible for the Defence Budget, establishment matters, defence policy, matters relating to Parliament, defence co-operation 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, indigenization of imported stores, equipment and spares, planning and control of departmental production units of the Ordnance Factory Board and Defence Public Sector Undertakings (DPSUs).

(iii) **The Department of Defence Research and Development** is headed by a Secretary, who is the Scientific Adviser to the Raksha Mantri. Its function is to advise the Government on scientific aspects of

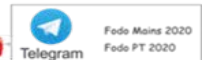
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military equipment and logistics and the formulation of research, design and development plans for equipment required by the Services.

(iv) **The Department of Ex-Servicemen Welfare** is headed by a Secretary and deals with all resettlement, welfare and pensionary matters of Ex-Servicemen.

Indian Army



The Indian Army is the land-based branch and the largest component of the Indian Armed Forces. The President of India serves as Supreme Commander of the Indian Army, and it is commanded by the Chief of Army Staff (COAS), who is a four-star General. Two officers have been conferred the rank of Field marshal, a Five-star rank, which is a ceremonial position of great honour. The Indian Army originated from the armies of the East India Company, which eventually became the British Indian Army, and the armies of the princely states, which finally became the national army after independence.

Conflicts and operations (Indian Army)

- **First Kashmir War (1947)**
- **Annexation of Hyderabad (1948)**
- **Medical assistance during Korean War (1950–1953)**
- **Annexation of Goa, Daman and Diu (1961)**
- **Sino-Indian War (1962)**
- **Indo-Pakistani War of 1965**
- **1967 Sino-Indian Conflict**
- **Operation against the Naxalites during 1971**
- **Bangladesh Liberation War of 1971**
- **Siachen conflict (1984)**
- **Kargil war (1999)**
- **United Nations peacekeeping missions**

The Indian Army has a regimental system, but is operationally and geographically divided into **seven commands**, with the basic field formation being a division. It is an all-volunteer force and comprises more than 80% of the country's active defence personnel. It is the **2nd largest standing army in the world**, with 1,129,900 active troops and 960,000 reserve troops. The army has embarked on an infantry modernisation programme known as Futuristic Infantry Soldier As a System (F-INSAS), and is also upgrading and acquiring new assets for its armoured, artillery and aviation branches

Indian Army Rank Structure

Recent exercises

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- Yudh Abhyas (with USA)
- Exercise Shakti (with France)
- Exercise Nomadic Elephant (with Mongolia)

Exercise Shatrueet -

In **April 2016**, Indian Army conducted a major exercise called 'Shatrueet' by the elite Mathura-based Strike Corps in desert area of Mahajan field firing range of Rajasthan, wherein the capability to strike, deep into the enemy territory in an

integrated air-land battle environment was evaluated. The focus of the exercise was to achieve joint and seamless coordination among all the forces in a nuclear biological chemical warfare scenario so as to deliver the enemy, a lethal punch with full might at a lightening speed. The operationally-oriented exercise was focused on validating integrated theatre battle fighting concept by incorporating new age technologies, weapon platforms and systems as well as long-range precision targeting vectors.



Operational Commands of Indian Army & their Headquarters

Indian army is organized into 7 operational commands.

1. Southern Command is headquartered at Pune

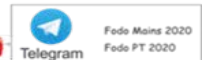
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2. Northern Command at Udhampur Jammu & Kashmir
3. Western Command at Chandimandir Punjab
4. Eastern Command headquarters in Kolkata
5. Central command headquarters in Lucknow
6. Training command at Mhow Madhya Pradesh
7. South Western Command with headquarters at Jaipur.

- When India became a republic in 1950, the Royal Indian Navy as it had been named since 1934 was renamed to Indian Navy.
- The 17th-century Maratha emperor **Chhatrapati Shivaji Maharaj is considered as the 'Father of the Indian Navy'**

The Indian Navy is the prime enabler and guarantor of the country's maritime sovereignty and myriad use-of-sea activities. This is discharged by the Indian Navy through its **four roles** – military, diplomatic, constabulary and benign.

Objective

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 security and implement anti-piracy measures.

- India is a maritime nation and our economy is critically dependent on the seas for conduct of trade. **More than 90 per cent of our trade by volume, and 77 per cent by value, is transported over the seas.**
- The Navy discharges this role by shaping perceptions, building partnership, showing presence, building trust with other friendly navies and participating in combined/joint operations.
- The use of the Indian Navy for disaster relief operations, both within the country and also in global areas of interest, as part of the Navy's benign role, would continue to provide options to the national leadership.

Navy



Brief History-

- The Indian Navy can trace its lineage back to the *Honourable East India Company's Marine* which was founded in 1612 to protect British merchant shipping in the region.
- In 1793 the East India Company established its rule over eastern part of the Indian subcontinent i.e. Bengal, but it wasn't until 1830 that the colonial navy became known as Her Majesty's Indian Navy.
- In 1858, East India Company rule gave way to the British Raj which lasted until India became independent in 1947.

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Commands (Indian Navy)

	Mumbai	Visakhapatnam	Kochi	Port Blair
Commands	Western Naval Command	Eastern Naval Command	Southern Naval Command	Andaman & Nicobar Command
Headed By	Flag Officer Commanding in Chief, WNC	Flag Officer Commanding in Chief, ENC	Flag Officer Commanding in Chief, SNC	Commander-in-Chief, ANC
Command Authorities & Units	Units of WNC	Units of ENC	Units of SNC	Units of ANC



International fleet Review 2016

International Fleet Review 2016 (IFR 2016) was an international maritime exercise hosted and conducted by the Indian Navy on behalf of the President of India in February 2016. Its objective was to improve the extent of mutual trust and confidence with neighbouring navies by inviting them to participate in the review.

The Indian Navy displayed its maritime capabilities to the foreign navies which participated in the review. Prior to the 2016 review, there were two

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Naval exercises

Varuna (with the [French Navy](#))

Konkan (with the [Royal Navy](#))

Indra (with [Russian Navy](#))

Malabar (with the [US Navy](#))

Simbex (with the [Republic of Singapore Navy](#))

IBSAMAR (with the [Brazil](#) and [South African](#) navies)

TROPEX (Theatre-level Readiness Operational Exercises) was held during which Indian Navy experimented the doctrine of influencing a land and air battle to support the Indian Army and the Indian Air Force

SLINEX-II (with Sri Lanka)

Milan Once in two years navies from the Indian Ocean region meet at the Andaman and Nicobar Islands and the event is named as Mila

Overseas Operations

1. Search and Rescue Operation of Missing Malaysian Aircraft: Malaysian Airlines Aircraft **MH 370** was reported to be missing on the night of March 7/8, 2014, during flight from Kuala Lumpur to Beijing. A search and rescue operation was undertaken (Operation Sahayata) by the Indian Navy from April 13-17, 2014 by **INS Kumbhir, Kesari and Saryu**. Operation Haystack for the same incident was undertaken by **INS Saryu, Bangaram and Battimalv** from April 19-26, 2014. P-8I maritime surveillance aircraft of the Indian Navy were also deployed for search operations.

other notable international fleet reviews. These were the International Fleet Review 2013 and the International Fleet Review 2005 held by Australia and United Kingdom respectively. This is the second International Fleet Review conducted in India. Prior this, India had conduct an international fleet review in 2001 at Mumbai.

The event was organized by the [Eastern Naval Command](#) of the Indian Navy

- 2. Operation Capella:** INS Mysore was deployed in the Persian Gulf from end June to July, 2014 and was standby to undertake evacuation of personnel from Iraq.
- 3. Eastern Fleet Overseas Deployment (OSD):** Indian Navy ships Shakti, Ranvijay and Shivalik were deployed in the South China Sea, Sea of Japan and Western Pacific Ocean in July-August, 2014. The Indian Navy ships undertook two major exercises viz. **INDRA 14** with the Russian Navy and **Malabar 2014** with the US Navy.
- 4. Western Fleet OSD:** Indian Navy ships Deepak, Mumbai, Talwar and Teg were deployed in the Southern Indian Ocean in October-November, 2014 and visited Antsirananana, Mombasa, Dar – es – Salem, Simon’s Town, Cape Town, Port Louis, St Denis, Port Victoria and Nacala during the OSD.
- 5. OSD of Training Squadron:** Indian Navy ships of 1st Training Squadron visited Abu Dhabi and Muscat as part of training for sea cadets.

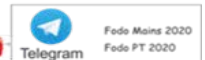
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Defence

Indian Coast Guard (भारतीय तटरक्षक)



- The Indian Coast Guard (ICG) protects India's maritime interests and **enforces maritime law**, with jurisdiction over the territorial waters of India, including its contiguous zone and exclusive economic zone.
- The Indian Coast Guard was formally established on 18 August 1978 by the Coast Guard Act, 1978 of the Parliament of India as an **independent Armed force of India**.
- It **operates under the Ministry of Defence**
- The Coast Guard works in close cooperation with the Indian Navy, the Department of Fisheries, the **Department of Revenue (Customs)** and the Central and State police forces.
- The command and control of the Coast Guard lies with the **Director General of Indian Coast Guard, at New Delhi**.
- The organization has regional headquarters located at Gandhinagar, Mumbai, Chennai, Kolkata and Port Blair.

Role/Missions of Indian Coast Guard

1. **Safety and protection of artificial islands, offshore terminals and other installations**
2. Protection and assistance to fishermen and mariners at sea
3. **Preservation and protection of marine ecology and environment including pollution control**
4. Assistance to the Department of Customs and other authorities in anti-smuggling operations
5. Law enforcement in territorial as well as international waters
6. Scientific data collection and support
7. National defence during hostilities (under the operational control of the Indian Navy)

Additional responsibilities of the Indian Coast Guard

1. **Offshore Security Coordination Committee (OSCC)** - The Director-General of the Indian Coast Guard is the Chairman of OSCC constituted by the Ministry of Petroleum and Natural Gas (MoPNG).
2. **National Maritime Search and Rescue Coordinating Authority (NMSARCA)** - The Director-General of the Indian Coast Guard is the NMSARCA for executing / coordinating search and rescue (SAR) missions
3. **Lead Intelligence Agency (LIA)** - For coastal and sea borders
4. **Coastal Security** - The Director-General of the Indian Coast Guard is the commander of coastal command and is responsible for overall coordination between central and state

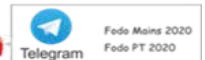
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agencies in all matters relating to coastal security

Coast Guard patrol vessel *Arnvesh* commissioned

The fast patrol vessel (FPV) of the Indian Coast Guard, *ICGS Arnvesh*, was commissioned here on Monday by Flag Officer Commanding-in-Chief, Eastern Naval Command, Vice-Admiral H.C.S. Bisht.

The 50-metre long, 300-tonne vessel is the 16th of the 20 in this category being built by the Cochin Shipyard Limited (CSL).

Propelled by triple Rolls Royce Kamewa water jets, it can achieve a maximum speed of 33 knots and carry a crew of five officers and 34 men.

Fitted with the state-of-the-art navigational and communication equipment, including night vision capabilities, its main armament comprises 40/60 Bofors guns.

Commissioning the vessel, Vice-Admiral Bisht said the role of the Coast Guard had now become 24/7, and it played a very active role in coastal security, especially terror threat from the sea. "Today, the coast is secured by the tri-forces of the Navy, the Coast Guard and the Marine Police," he said.

On the role of *ICGS Arnvesh*, Inspector General of Coast Guard (Eastern Region) S.P. Sharma said the vessel would primarily focus on surveillance at sea, coastal patrol, anti-smuggling operations, anti-piracy and search and rescue operations.

According to him, the Coast Guard was on an expansion mode, as its role in safeguarding the maritime assets in the exclusive economic zone (EEZ) and coastal security had increased.

Indian Air Force (भारतीय वायु सेना)



- The Indian Air Force is the air arm of the Indian armed forces. It is the **World's 4th largest airforce**.
- Its primary responsibility is to secure Indian airspace and to conduct aerial warfare during a conflict.
- Since independence, the IAF has been involved in four wars with neighbouring Pakistan and one with the People's Republic of China.
- Other major operations undertaken by the IAF include **Operation Vijay**, **Operation Meghdoot**, **Operation Cactus** and **Operation Poomalai**. Apart from conflicts, the IAF has been an active participant in United Nations peacekeeping missions.
- The President of India serves as Supreme Commander of the IAF.
- The Chief of Air Staff, an Air Chief Marshal, is a four-star officer and commands the Air Force. There is never more than one serving ACM at any given time in the IAF.
- The rank of Marshal of the Air Force has been conferred once, to **Arjan Singh**, by the

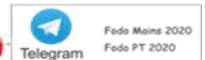
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President of India on 26 Jan 2002 and he became first five-star rank holding officer of

IAF & serves as the ceremonial chief.

Operational Commands

- Central Air Command (CAC), headquartered at Allahabad, Uttar Pradesh
- Eastern Air Command (EAC), headquartered at Shillong, Meghalaya
- Southern Air Command (SAC), headquartered at Thiruvananthapuram, Kerala
- South Western Air Command (SWAC), headquartered at Gandhinagar, Gujarat
- Western Air Command (WAC), headquartered at New Delhi

Functional Commands

- Training Command (TC), headquartered at Bangalore, Karnataka
- Maintenance Command (MC), headquartered at Nagpur, Maharashtra

Humanitarian Assistance and Disaster Relief (HADR) is one of the key tasks of the IAF, and it has risen to the challenge whenever called upon to do so. The calamitous floods in Kashmir valley this year saw the IAF undertake **Operation Megh Rahat**. Approximately 70 IAF aircraft were deployed in HADR missions. In coordination with the Indian Army, National Disaster Response Force (NDRF) and civil agencies, over 96,000 people were rescued and over 3,500 tonnes of relief material airlifted. Air effort during **Cyclone Hudhud in Odisha** was another sterling contribution by the IAF. Also, air support provided during the 2014 General Elections, search and rescue operations, air maintenance missions flown **towards Operation Triveni** as well as sustained air maintenance for Indian Army were notable achievements during the year.

Garud Commando Force

In September 2009, the IAFMM established its own special operation unit called the Garud Commando Force, consisting of approximately 1,500 personnel. For starting this special force volunteers from

exiting trades were called and sent for commando and specialised training at various institutes of army and other forces. The airmen who successfully completed all course were inducted in Garud force, while special recruitment and selections from various IAF training institute were made for selecting young air warriors for Garud SF. The unit derives its name from **Garuda, a divine mythical bird of Hindu Mythology**, but more commonly the word for Garuda in Sanskrit.

Garud is tasked with the **protection of critical installations**; During hostilities, Garuds undertake **combat search and rescue**, rescue of downed airmen and other forces from behind enemy lines, suppression of enemy air defence (SEAD), radar busting, combat control, missile and munitions guidance ("lasing" of targets) and other missions in support of air operations. It has been suggested that they undertake an offensive role including raids on enemy air bases etc. during times of war.

Apart from **protecting air bases from sabotage and attacks** by commando raids, they are also tasked to seal off weapons systems, fighter hangars and

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other major systems during intrusions and conflicts and **disaster relief** during calamities

Key Acquisitions and Upgrades (Air Force)

Su-30 MKI: Delivery of additional Su-30 MKI aircraft contracted with Hindustan Aeronautics Limited (HAL) continued this year, and is planned to be completed by 2016-17. Modification work on Su-30 MKI for **integration of BrahMos missile** on the aircraft has been completed. Meanwhile, **indigenously developed Astra 'Beyond Visual Range' Air-to-Air Missile** was successfully test fired from Su-30 MKI aircraft.

Mirage 2000 Upgrade: The Project for upgrade of Mirage 2000 aircraft is under implementation.

MiG-29 Upgrade: After completing the final stages of flight tests, Series Upgrade for the MiG-29 fleet has commenced at a Base Repair Depot of the IAF.

Jaguar DARIN-III Upgrade: Jaguar aircraft has flown with its enhanced navigation and weapon delivery capabilities. Upgrade of the engine alongside will provide extended operational relevance for this aircraft.

Tejas Light Combat Aircraft: With HAL having commenced series production of Light Combat Aircraft, its operational induction is anticipated in 2015.

Latest Development in Indian Air force 2016 (The Hindu)

All you need to know about the Rafale deal

1. What is Rafale aircraft?

Rafales are twin-engine Medium Multi-Role Combat Aircraft (MMRCA) manufactured by [Dassault Aviation](#), a French firm. Rafale fighter jets are positioned as 'omnirole' aircrafts that capable to perform a wide-range of combat roles such as [air supremacy](#), [interdiction](#), [aerial reconnaissance](#), [ground support](#), in-depth strike, anti-ship strike and nuclear deterrence.

France wins \$10 billion Indian deal for 126 fighters



DASSAULT RAFALE		EUROFIGHTER	
LENGTH	15.27 m	LENGTH	15.96 m
WINGSPAN	10.80 m	WINGSPAN	10.95m
EMPTY WEIGHT	9,500 kg	EMPTY WEIGHT	11,150 kg
LOADED WEIGHT	14,016 kg	LOADED WEIGHT	16,000 kg
POWERPLANT	2 x Snecma M88-2	POWERPLANT	2 x Eurojet EJ200
FUEL CAPACITY	4,700 kg	FUEL CAPACITY	4,500 kg
TOP SPEED	2,130 km/h	TOP SPEED	2,495 km/h
RANGE	3,700 km	RANGE	2,900 km
CREW	1-2	CREW	1-2

2. Why has India opted for Rafale?

Rafale was not India's only choice. Several international aviation manufacturers expressed interest upon knowing the Indian government's mammoth plan to revamp its Indian Airforce fleet by introducing MMRCAs.

Six renowned aircraft manufacturers competed to bag the contract of 126 fighter jets, which was touted to be the largest-ever defence procurement deal of India.

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The Initial bidders were Lockheed Martin's F-16s, Boeing's F/A-18s, Eurofighter Typhoon, Russia's MiG-35, Sweden's Saab's Gripen and Rafale.

All aircraft were tested by the IAF and after careful analysis on the bids, two of them — Eurofighter and Rafale — were shortlisted. Dassault bagged the contract to provide 126 fighter jets, as it was the lowest bidder and the aircraft were said to be easy to maintain.

3. When did the actual procurement process begin?

Indian Air Force sought additional fighter jets in 2001. The current IAF fleet largely consists of heavy and light-weight combat aircraft. So the Defence Ministry considered bringing in intermediate medium-weight fighter jets. Though the idea has been around since 2001, the actual process began in 2007. The Defence Acquisition Council, headed by then Defence Minister A.K. Antony, approved the [Request For Proposal](#) to buy 126 aircraft in August 2007. This kick-started the bidding process.

4. How many Rafales are we buying and what's the cost involved?

The deal was initially estimated to be worth \$10.2 billion (Rs.54,000 crore). The plan included acquiring 126 aircraft, 18 of them in fly-away condition and the rest to be made in India at the Hindustan Aeronautics facility under transfer of technology.

5. So Rafale won the contract. And India is buying 126 jets. That's it?

No, it's trickier than that. After Rafale won the contract, the Indian side and Dassault started negotiations in 2012. While it is usual for such

negotiations to stretch to several months, the Rafale negotiations has been on for almost four years now. The agreement was signed only in January this year.

6. Why this delay?

Both India and France witnessed national elections and a change in government while the negotiations were under way. Pricing was another factor. Even during the signing of the purchase agreement, both the sides [couldn't reach a conclusion](#) on the financial aspects. According to sources, the price of an aircraft is about Rs.740 crores and India wants them for at least 20 per cent lesser cost.

Though the initial plan was to buy 126 jets, [India scaled it down to 36](#), that too in ready condition.

7. How important is this deal to both India and France?

France: Rafale jets are currently being used mostly by France and also by Egypt and Qatar. Dassault is hoping that export of Rafale jets will help the company meet its revenue targets. India was the first country that agreed to buy Rafale, after it was used in Libyan airstrikes. If India inducts these jets in its military fold, other nations could express its willingness to buy Rafales.

India: India chose Dassault over its traditional partner Russia's MiG. It also ignored U.S.' Lockheed, at a time when India and U.S. were aiming for closer ties. Procurement of combat aircraft is long overdue for the Indian Air Force. Further delay can only make things worse. This deal is India's biggest-ever procurement. In the effectiveness of the Rafale deal lies the future of other defence procurements.

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Iron Fist 2016: Display of IAF's might

The event will be conducted at the **Pokhran** firing range in Rajasthan, and will have President Pranab Mukherjee, Prime Minister Modi, Defence Minister Manohar Parikar and Chief of IAF Air Marshal Arup Raha, among many other senior officers as guests.

India's Iron Fist Exercise was first held in 2013 as a demonstration of the military capabilities and tactical skills of the Indian Air Force. Typically, the day and night event is divided into four sections: the flypast, offensive capabilities, defensive capabilities, and night operations. Hundreds of aircraft and weapons are showcased.

The fighter planes on display this year include Sukhoi Su-30, Mirage 2000, Jaguars, MIG 21, attack helicopters, Unmanned Aerial Vehicles (UAVs) and high-tech Airborne Warning And Control Systems (AWACS).

Tejas, India's Light Combat Aircraft (LCA), will be

the highlight of the day. As it moves closer to Final Operational Clearance, it can soon be included in the IAF's official fleet for combat roles. Tejas is set to fire US- and Russia-made missiles. Astra, the Beyond-Visual-Range Air-to-Air Missile will be fired for the first time at the rally.

Besides showcasing aircraft, the event also aims at flaunting the lethal competence of the IAF. From weapons to acrobatic capabilities, the show of strength is bound to send a powerful message about India's military readiness to her contemporaries.

New technologies such as all-weather, network-centric operations, lethal firepower, and precision weapon delivery boasts of the IAF's modern combat capabilities.

The Defence Procurement Policy 2016

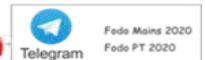
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INDIGENISATION PUSH

Changes to the defence acquisition policy appear nominal rather than a quantum leap in localising defence production

• New category for Indigenously Designed, Developed and Manufactured (IDDM) platforms with two sub-categories

• Department of Defence Production to fund private R&D projects; up to 90 per cent funding with 20 per cent in advance and tender to be issued in 24 months

• Offsets (compulsory procurement of 30 per cent of contract from India) hiked from Rs. 300 crore to Rs. 2000 crore giving



flexibility to foreign companies

• Single vendor situation to be allowed if there is proper justification

• Make category to be split into three: government funded, industry funded and industry funding (MSME)

• This is a ground breaking policy which will benefit the MSMEs enormously

-Ashok Aturi, Managing Director, Zen Technologies

• This signifies that MoD-private Industry relationship is evolving from a transaction to a partnership model

-Rahul Gangal, partner at Roland Berger (consultancy)

• The proposed changes are an evidence that the government has a firm focus on developing the indigenous manufacturers, especially MSMEs

-Puneet Kaura, MD and CEO, Samtel Avionics

- The Defence Acquisition Council has approved a revised Defence Procurement Procedure (DPP), aimed at boosting indigenous defence procurement and encouraging better participation from the Indian private sector.
- The Council is headed by Defence Minister Manohar Parrikar and includes key stakeholders of the defence establishment.
- Among its key decisions is a proposal to introduce a new category of acquisition termed **Buy Indian (or IDDM, indigenous design development and manufacturing)**, which would become the most preferred acquisition category.
- Under Buy Indian, domestically designed equipment with **40 per cent indigenous components** or **foreign-designed equipment** with **60 per cent local components** will be considered.
- The new DPP has significantly increased the offset threshold for foreign contracts from **Rs. 300 crore to Rs. 2,000 crore** (with **30 per cent** of the contract value to be procured from within India), while it has certain provisions for **encouraging Micro, Small and Medium Enterprises**.

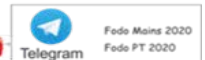
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- At first glance, the DPP is an incremental improvement over recent efforts to reduce India's import dependence, which stands at 65 per cent of total defence procurement, to help create a robust military industrial complex within the country.

Analysis of The Defence Procurement Policy, 2016 (from the Hindu)

Towards military self-reliance

The Defence Procurement Policy 2016 made public this week is a step forward in increasing the participation of India's private sector in military manufacturing. It replaces the last DPP unveiled in 2013, and has several recommendations for improving indigenous procurement. The DPP, the governing manual for all defence procurement, was part of a set of military reforms undertaken to address the many deficiencies noticed during the 1999 Kargil war. Since the first one in 2002, the DPP has been revised periodically. The new policy places the highest preference to a newly incorporated procurement class called 'Buy Indian-IDDM', with IDDM denoting Indigenous Designed Developed and Manufactured. This category refers to procurement from an Indian vendor, products that are indigenously designed, developed and manufactured with a minimum of 40 per cent local content, or products having 60 per cent indigenous content if not designed and developed within the country. The policy has also liberalised the threshold for offset liabilities for foreign vendors —

now the obligation to invest at least 30 per cent of the contract value in India will kick in at Rs.2,000 crore, a significant increase from the previous Rs.300-crore mark. The policy lays stress on micro, small and medium enterprises (MSMEs), and on "Make in India". A 10 per cent weightage has been introduced for superior technology, instead of selecting the lowest bidder only in financial terms. DPP 2016, however, falls far short of the expectations raised by the Narendra Modi government's ambitious "Make in India" push that aims to transform the country into a global manufacturing hub. India is the world's largest importer of defence equipment, and indigenising production is key to such a plan. The DPP is noticeable for the absence of Chapter VII, titled 'Strategic Partners and Partnerships', which the Defence Minister said would be notified separately. Under Strategic Partnerships, select Indian private companies were to be given preferential status in major defence projects. The inability of the Centre to finalise a credible policy to radically increase indigenous military manufacturing is a sure sign that India will remain heavily dependent on defence imports. Given the country's robust financial growth, one of its greatest leveraging points is the annual spend on procurement. India has all the necessary prerequisites for a robust military-industrial complex: a diverse private sector, a large base of engineering institutes, and a growing defence budget. The fact that India faces a combination of security threats from both state and non-state actors is an obvious reason why it needs to be self-reliant in military equipment.

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There is another important reason why India needs an indigenous military-industrial complex: it will significantly reduce the potential for corruption in military procurement. However, the new procurement policy does not inspire hope that domestic defence production will grow sufficiently. It may not be just an irony that the policy has been released as India hosts yet another Defexpo event, in Goa, where global vendors are hawking their war machines to a technologically famished Indian military.

Defence policy to give a push to 'Make in India'

The Defence Ministry on Monday unveiled the new Defence Procurement Policy, intended primarily to improve indigenous procurement, but left out the most significant reform it had been promising.

The DPP-2016, made public to coincide with the latest edition of DefExpo in Goa, was expected to herald a new era in the way India's private sector participates in defence procurement, but that is not to be.

Speaking at the inauguration of DefExpo, an exhibition of land and naval systems, Defence Minister Manohar Parrikar said the new policy would give top priority to speedy procurement, focus on indigenous design and development and lay emphasis on Make in India.

The expo, being held in Goa for the first time, has the participation of 1,055 companies from 47

countries and 224 delegations from 48 countries.

The Minister said the policy had taken care of some of the issues raised by foreign companies and in another two or three months, the Ministry would take care of a few more issues that were pending. The new DPP can push the agenda of Make in India in a big way, he said.

While the **FDI limit remains 49 per cent** through the automatic route, a higher percentage can be considered on special cases, he said. The DPP recognises the role of small and medium enterprises in the sector, and a further boost will be given to it.

Pointing out that self-reliance is "a major corner-stone on which the military capability of any nation must rest," the DPP says it is of "utmost importance that the concept of 'Make in India' remains the focal point of the defence acquisition policy/procedure."

Make in India in defence (Indian Express)

Being the multi-billion dollar and most lucrative defence market in the world, India provides several opportunities for Indian and foreign corporate entities for defence manufacturing. Thanks to the Make in India campaign, the defence sector has moved from the periphery to the core of Indian manufacturing. Several CII reports have suggested

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that the sector not only has the potential to augment manufacturing but also add nearly one million direct and indirect jobs. Some of the top industrial houses have already made some inroads into the sector. Several more are waiting for the right opportunity.

The CII welcomes the much-awaited release of the Defence Procurement Procedure (DPP 2016) on the inaugural day of Defexpo 2016 by the defence minister. The initial feedback from all stakeholders, including industry and end-users, indicates that many issues have been ironed out to enhance the DPP's efficacy. There has been a clear departure from past practices that often left critical defence procurements in limbo. The revised procedures provide more flexibility to the end-users and the industry to work together, especially on development projects. A new procurement category — Indigenously Designed, Developed and Manufactured (IDDM) — has been introduced and accorded top priority. It essentially means the government is leaving no stone unturned to give a boost to Make in India. The "Make" procedure has been further classified into three types to address the concerns of MSMEs in particular. The defence ministry would fund up to 90 per cent of the Make project's prototype development cost. Adding one more safeguard for the industry, the ministry will reimburse the remaining 10 per cent prototype development cost, if the order is not placed within a stipulated timeframe after the successful test of prototypes.

A few issues, including ensuring a level playing field between public and private and the Foreign

Exchange Rate Variation (FERV), were addressed before the DPP's release. For instance, excise and customs duty exemptions available to PSUs/ Ordnance Factory Board (OFB) have been withdrawn. The Union budget also mentions this. FERV is now allowed for the private sector in all contracts, as was available to PSUs/ OFB earlier in nomination cases.

The DPP also addresses issues like incentives to move the Indian defence industry up the value chain. Various provisions remove ambiguities, ensure transparency, offer a level playing field and clearly lay down procedures. It won't be an exaggeration to say that the defence ministry has taken all the right steps to create a conducive environment for the defence industry's growth, as envisaged in the Defence Production Policy. Given the opportunity, this industry has the potential to become a huge foreign exchange earner and also lead India to its professed goal of self-reliance.

Nearly \$14 billion worth of defence offset obligations will be discharged by the foreign Original Equipment Manufacturers (OEMs) by 2028. It's heartening to note that the government has taken serious note of

the industry's recommendation for further streamlining the Defence Offset Guidelines. These guidelines are part of the DPP and have been revised to add more flexibility and accountability.

DPP 2016 has also opened up several co-development and co-production avenues for Indian as well as foreign companies. The ministry seems to have successfully bridged the gap between intent and implementation. Earlier policies and

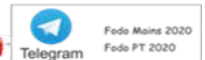
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procedures were often criticised for lacking in implementation despite the best of intent. For the first time, the defence ministry has accepted the industry's longstanding request for linking defence procurement with defence production. This inter-linkage would go a long way in realising Make in India in defence.

End-users will literally have to exhaust all possible options of domestic manufacturing before suggesting "Buy Global" procurements. Interestingly, in the past one-year-plus, most of the "Acceptance of Necessity" for forthcoming defence procurements have been granted for "Buy India" and "Buy and Make (Indian)" category. It means the government is walking the talk.

Indian industry is keen to take on complex hi-tech and more challenging projects. It would be desirable to identify and share more Make projects across the three services to enable Indian industry to prepare their business case. Also, prior intimation would also allow Indian industry to look

for and tie up with foreign OEMs as a co-developer/ technology partner.

Concluding note

Defexpo India 2016

Defexpo India 2016, the ninth in the series of biennial Land, Naval and Internal Homeland Security Systems Exhibition, will be held at Naqueri Qitol in Quepem Taluka of South Goa, India from 28th to 31st March 2016. Defexpo India is clearly steering the path of steady growth and has been receiving overwhelming and unprecedented international response with each edition.

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Shri Narendra Modi Prime Minister of India

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Class explanation- mind map

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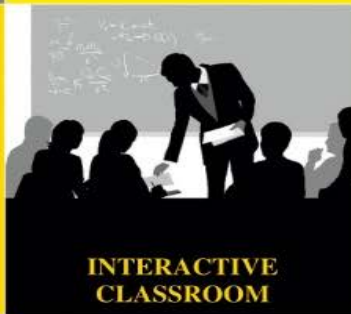
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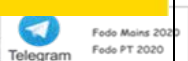


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