

Miscellaneous

71. Triple Talaq & Uniform Civil Code

Introduction

Triple Talaq is a form of divorce that was practised in Islam whereby a Muslim man could legally divorce his wife by pronouncing talaq three times. It could be oral, written or by electronic means as telephone, SMS, email or social media. It was called talaq-e-biddat.

The man did not need to cite any reason for divorce and wife need not be present. A divorced women could not remarry her divorced husband unless she first married another man, a practice called nikah halala.

Background

Muslim family affairs in India are governed by Muslim Personal Law 1937. Muslim couples in India are not required to register their marriages with Civil authorities. Muslim marriages in India are considered to be a private affair, unless the couple decides to register it. Owing to these factors, the checks that have been placed on the husband's unilateral right of divorce by Government of other countries and the prohibition of triple talaq were not implemented in India.

Triple Talaq was supported by All India Muslim Personal Law Board (AIMPLB). It believed that the State does not have the right to intervene in religious matters.

AIMPLB issued a code of conduct in 2017, regarding triple talaq wherein it warned that divorce for reasons not prescribed under Shariat will be socially boycotted. In addition, boycott of those who use triple talaq recklessly & without justification. It also stated that it should be delivered in three sittings with a gap of at-least a month each.

Shah Bano Case

The practice of triple talaq faced oppositions from Muslim woman, some of them filed PIL in the Supreme Court. In March 2017, over one million Indian Muslims mostly women signed a petition to end this practice.

The case against triple talaq was called Shah Bano Vs Union of India. The Bench that heard the case in 2017 was of multifaith members. The Supreme Court examined whether it has protection of the Constitution – under Art 25 (I).

In its 397 page ruling, SC held that triple talaq was unconstitutional thus barring practice by 3-2 majority. The court asked the Central Government to promulgate legislation within six months to govern marriage & divorce in Muslim community. The Court ruled that until the govt formulates a law, against instant triple talaq, there would be injunction against husbands pronouncing instant triple talaq on their wives.

Muslim Women (Protection of Rights On Marriage) Bill 2017

Government formulated a Bill and introduced it in Parliament after number of cases of instant triple talaq in the country were reported since Supreme Court Judgment. On 28 Dec 2017. Lok Sabha passed the bill. The bill was planned to make instant triple talaq in any form, written, spoken or electronic means illegal & void with upto three years in jail for the husband.

The Government issued an ordinance to make practice illegal & void. The provisions of Ordinance are as follows:

- Cognizable offence with maximum of three years imprisonment & fine.
- Only the complaint with the police by the wife or her blood relative will be recognized.
- Non bailable offence i.e. only magistrate can grant bail and not police.
- Custody of minor children will go to mother.
- Wife is entitled to subsistence allowance.

Bill was passed by Lok Sabha in December 2018, stuck in Rajya Sabha. Finally subsequent ordinances method was followed and it became a law on 31st July 2019.

Uniform Civil Code (UCC)

Uniform Civil Code means that all sections of society, irrespective of their religion shall be

treated equally according to a national civil code which shall be applicable uniformly.

Presently there is Hindu Marriage Act 1955, Muslim Personal Law Act 1937, Christian Marriage Act 1872 and a Parsee Marriage & Divorce Act 1973, Hindu Marriage Act applies to Hindus, Buddhist, Jain and Sikh.

Demand for a Uniform Civil Code was put forward by women activist in the beginning of 20th Century. Owing to Shah Bano case. The UCC became a controversial topic as some parties were in favour and other were opposing it.

Present Government on 01 July 2016, asked the Law Commission to examine the matter of Uniform Civil Code and submit a report after discussion with experts & stakeholders.

Constitutional Provision : As per Article 44 Part IV of the Constitution the State shall endeavor to secure the citizen a Uniform Civil Code is applicable throughout the territory of India. However Article 37 of the constitution says that Directive Principle shall not be enforceable by any court.

Advantages of UCC

- It will integrate India irrespective of caste, religion or tribe.
- Help in reducing vote bank politics which most parties indulge during elections.
- Sign of modern progressive nation-help society to move forward.
- More rights to women.

- All Indians would be treated same-marriage, inheritance, family property etc. are concerned.
- Promotes real secularism as every person will be treated same.

Challenges

- A very formidable task considering vast range of interests and sentiment.
- Misinformation about UCC – as content of UCC have not been spelled out, it is leading minorities to believe that it is a way to Hinduism them.
- Lack of political will due to complexity & sensitivity of issue.
- It may lead to politicization.

Conclusion

India has a unique blend of personal laws. There exists no uniform family related law which is acceptable to all religions however a majority of them feel that UCC is definitely desirable and would go a long way in strengthening India. Instead of using it as an emotive issue to gain political advantage, Political & intellectual leaders should try to evolve a consensus. The question is not minority protection but it is simply one of treating each human person with dignity, something which personal laws have failed to do so.

72. Social Media

Introduction

These are interactive technologies that help in creation and sharing of information, ideas, interests and other forms of expression through virtual communities and networks.

- Social media are interactive web / internet based applications.
- User generated content-posts, comments, photos or videos and data generated through online transactions are the life line of social media.
- It helps in development of online social networks by connecting user's profile with those of individuals or groups.

Some of the most popular social media websites with more than 100 million registered users include:-

- Facebook
- We Chat
- Instagram
- Twitter
- Linkedin
- Whatsapp
- Weibo
- Share Chat

Some other platforms depending on interpretation are also referred to as social media

- Youtube
- Telegram
- Snapchat
- Pinterest
- Signal

Advantages of Social Media

Sharing Users usually access social media services through web based applications on desktop or on mobile devices (Smartphones or tablets). Users create highly interactive platforms in which individuals, communities & organizations can share, co-create, discuss, participate & modify content posted online.

Document Memories Social media is used to document memories, learn about & explore things, advertise oneself and form friendship along with the growth of ideas from the creation of blogs, podcasts, videos etc.

Social media differs from traditional media (print, newspapers, TV & Radio) in many ways including quality, reach, frequency, usability, relevance & permanence. Social media operates in a dialogic transmission system while traditional media operates under monological transmission model.

Connectivity It helps in improving an individual's sense of connectedness with real or online communities & can be an effective communication, marketing tool for corporates, entrepreneurs, non profit organisations, political parties & governments.

News Social media is also being used to read or share news however authenticity of the news is doubtful.

Viral Contents Social media sites are powerful tools for sharing content across networks. Certain content has potential to spread virally. Viral marketing campaigns are attractive to businesses because of widespread advertisement coverage at very low cost. Non profit organisations & activists may also use social media to post content with the aim of it going viral. Twitter & Facebook help users to reshare content – like retweet in Twitter & share in Facebook. Hashtags can also be used in tweets to take count of how many people have used hashtags.

Transparency in Governance Govts may use social media to inform their opinions to public, interact with citizens, faster citizen participation, transparency in functioning, analyse/monitor public opinion & educate public about public health.

Law Enforcement & Investigations It has been extensively used in Civil & Criminal investigations. It has also been used in searches for missing persons. Police often use social media accounts to engage with public, track individuals and apprehend people via social media based sting operations.

Economy / Business

- Social media tools are used by businesses for marketing, research, communication, sales promotions, discounts and e-commerce.
- To monitor, track & analyse online conversations on web about their brand or products or related topics.
- Proves useful in PR management and advertising campaign tracking.
- It helps in marketing of financial products, gaining insights into market sentiment, future market predictions and as a tool to identify insider trading.

Politics

- Younger generations are becoming more involved in politics due to increase of political news on social media.
- Political campaigns by parties are targeting millennial online via social media posts to increase their political engagements.

Disadvantages

Negative Interpersonal Interactions Social media use sometimes involve negative interactions between users. Angry or emotional conversations can lead to dangerous situations.

Some users have faced these online threats manifesting into offline mode.

Cyber Bullying online harassment and trolling are common negative interactions. Both the bully and the victims are negatively affected.

Social Comparison People compare their own lives to the lives of their friends through the posts. Things posted online are generally the positive aspects of lives making other people question why their own lives are not as exciting or fulfilling.

Addictions to Social Media

- It causes lower life satisfaction and self esteem.
- It affects physical & mental health because it gives ability to seek approval & compare.

Sleep Disturbance Blue light of PC/ mobile has a major role to play in sleep disturbance – how often they logged on rather than time spent on social media sites was a higher predictor of

disturbed sleep suggesting an obsessive checking. Many teenagers suffer from sleep deprivation as they spend long hours at night on their phones which in turn also affect grades.

Stress

- Facebook depression is a type of depression that affects adolescents who spend too much time in social media sites.
- It can lead to problems like feelings of loneliness & low self esteem.
- Addicted youngsters are more likely to report low self esteem and high levels of depressive symptoms.
- Fear of Missing Out (FOMO) is a pervasive apprehension that others might be having rewarding experiences, from which one is absent. It is a type of social anxiety.

Fake News Social media is a major tool to spread fake news which can result in riots / political unrest.

Privacy

- Information shared on social media is no longer private.
- Collection of personal data is done by various agencies from social media accounts.
- Some information is captured without the user's knowledge or consent.
- Data may also be collected by Law Enforcement Agencies & Govt.
- Advertisers, business houses generally access data shared on social media platforms.
- India Armed forces have banned use of social media apps by its services personnel due to security privacy issues.

Conclusion

Social media has made wide range of positive and negative impacts. It helps in sharing, connectivity, knowledge, marketing, however privacy, cyber bullying, addiction, depression / stress, lack of outdoor / physical activities, obesity, life style diseases & sleep disorders are some of the negatives which one has to be careful while using social media.

73. India A Tourist Paradise

Introduction

India presents a variety of geographical and environmental features – high mountains, mighty rivers, vast fertile plains, rivers, valley, dense forests, deserts and a long coastline.

No country in the world comprises of such distinctions with diversity in culture, history and traditions. Nowhere in the world can be found such multifaceted, most diversified culture with rich heritage. India is a miniature world where the tourists find the best of the west & the east coexisting in perfect harmony for centuries.

Tourist Potential in India

Historical Monuments

India has a history which goes back to thousands of years. No other region in the world assembles as many paradoxes as India.

There are rugged forts to turbulent history, innumerable temples which are centuries old.

Taj Mahal at Agra remains one of the most sought after destinations in the world.

Red fort, Qutab Minar, Ranthambore Fort, Amer Fort, Chittorgarh, Charminar, Deogiri Fort, Ajanta & Ellora Caves and many such historical monuments are big attractions for the tourists from all over the world.

No less important is our heritage of colonial period whether British, Portuguese, French or Dutch.

Maharajas & their tales of romances, valour & chivalry is part of history but their imposing edifices like forts, palaces and other such monuments speaks volume of such heritage & lures tourists from all over the world.

Religious Tourism

Religious shrines like Amarnath, Badrinath, Kedarnath, Gangotri, Yamunotri, Vaishno Devi, Haridwar, Rishikesh, Kashi, Brindaban, Tripuri, Rameshwaram, Golden Temple, Gaya Pushkar and many more are centre of various religions and attract tourists.

India offers a variety of colourful festivals – Teej, Vasant Panchami, Baisakhi, Holi, Diwali, Onam etc.

During these festivals many programmes are organized like fairs, kite flying, dance shows etc. These festivals thus attract tourists not only from India but from other parts of the world.

Environmental Tourism

India is spread over a vast geographical area and has rich variety & diversity in flora & fauna.

Birds are a spectacular rich and easily observable segment of the fauna. Ghana Bird Sanctuary is one such example.

Elephant, Rhino, Bison, Bear, Lion, Tiger, Leopard, Deer, Blackbuck are some of the examples of wildlife of our country. Various wildlife sanctuaries like Jim Corbett, Kaziranga, Ranthambore attract large number of tourists.

Cultural Tourism

Classical dance and music are also an integral part of our Indian Society. Our folk tales are narrated through the medium of these dances & music. There are many religious events, beliefs and practices which have contributed to the culture of our country.

These cultural activities attract not only large number of Indian tourist but foreigners also participate whole heartedly to understand our values.

Adventure Tourism

India has a varied kind of geographical features from Himalayas in the North to deserts in the west, forests in the east and various fast flowing rivers flowing in the plains.

All these geographical features offer vast potential of tourism like skiing, desert safaris, trekking, mountaineering, para sailing, river rafting, jungle safari etc. These are the major source of tourist attractions in the country.

Medical Tourism

Due to excellent & economical medical treatment facilities, India is attracting tourists from all over the world, including from advanced countries.

Challenges – Indian Tourism

Since the last decade, India has increased travel and tourism by over 10 million. The Indian travel & tourism Industry is prospering enormously. It contributed 7.3% to India's total GDP and provided 90 million job to India.

However India is far behind several other smaller countries like Singapore, Thailand & Indonesia. The major challenges facing Indian Tourism are: -

Lack of Proper Infrastructure: Proper transportation facilities to include air connectivity, rail connectivity, road connectivity to a tourist place is a must.

Good infrastructure in terms of five star hotels, good restaurants to cater for food as per the requirement of tourists from different countries.

Proper medical resources, health facilities, hygiene & sanitation of tourist facilities will help in attracting more tourists.

Lack of Proper Human Resources: Highly skillful and potential men & Women are an inevitable part of the tourism sector. Skilled guides & interpreters, drivers and hotel staff is required to deal & guide the tourist coming from various countries to India.

Lack of Digital Promotions & Marketing: Promotion & suitable digital marketing push are indispensable for a nation's Travel & Tourism industry improvement.

Digital marketing of Indian Tourism Industry is not to the point yet. We need to develop apps which should contain complete information of various tourist places. Besides websites of various states need to be updated on a regular basis.

Lack of Security & Safety: Safety & Security of tourists is one of the major challenges of Indian Tourism. Increased rate of Crime against foreign women tourists in terms of sexual abuse, theft, credit card frauds, overcharging by taxi drivers & shop keepers affect Indian Tourism.

High Taxation: High Taxes on airline facilities, hotels & tour operators needs to be reduced to encourage tourist flow coming to India.

Conclusion

India is a living testament to one of the most remarkable history of culture. There is so much of diversity that India offers in terms of history, culture, religion, nature, climate, handicrafts which no other country offers. However the tourism is not flourishing as it should be as compared to smaller countries like Indonesia, Thailand, Saudi Arabia etc. We need to improve infrastructure, hygiene, sanitation, security, pollution to improve the tourism. Government of India needs to put concerted efforts in place to revamp tourism in the country.

74. Wildlife Preservation in India

Introduction

Wildlife means the undomesticated animals, fish, birds and uncultivated plants living in their natural habitat such as forest, grass land, ocean, rivers, deserts etc. without influence of human activities. It includes both flora & fauna.

India is home to large variety of wildlife. It has various ecosystems ranging from Himalayas in the North to Evergreen Rain Forest in South, sands of the west to marshy mangroves in East. India is the home to about 7.6% of mammal, 14.7% of amphibians, 6% of birds, 6.2% of reptiles and flowering plants each.

Flora & Fauna of India :

The Fauna includes Indian elephant, rhinoceros, tiger, lion, leopard, snow leopard, bear, deer, black buck, sambar, antelope, ibex, dolphin, cobra, python, crocodile, peacock, hornbill, bustard, quail, flamingo & many others.

Flora & Vegetation Ranges from tropical rain forest of Andamans, West Ghats & NE India to the coniferous forest of Himalaya, and dominated East India, teak dominated of Central & Southern India, basil dominated of Central Deccan & Mangroves of Sunderbans – West Bengal & Odisha. Neem, Bamboo, Orchids & Lotus are other famous flora species of the country.

Importance of Wildlife

Wildlife plays a very vital role in maintaining balances in nature's elements and ecological system.

- It helps in preservation of food chain.
- Conservation of region's species
- It provides genetic resources
- Various wild life sanctuaries are a big tourist attraction
- Maintains crucial balance in environment.
- Prevents soil erosion & mitigates climate change.

Causes of Degradation of Wildlife

Major causes of degradation of wildlife are:-

- **Habitat Destruction** Deforestation, agricultural expansion, urbanization, Infrastructure development can increase vulnerability of wildlife by reducing space & resources available to them.
- **Deforestation** It not only causes habitat destruction but also leads to climate change & endangers many species.
- **Poaching** Illegal wildlife trading is a major threat to species. These species include large mammals – elephants, tigers, rhinoceros. Hunting for pleasure, greed, food, furs, skin, horns, tusks etc is a serious threat to wildlife
- **Pollution** A wide range of pollutants negatively impact wildlife health. Air pollution by burning of fossil fuels & industrial emission, toxic chemicals of industrial waste, oil spills & pesticides & metallic pollutants through mining, smelting etc affects wildlife and clean air.
- **Climate Change** Rising temperatures, melting ice, droughts, heat waves, rising sea levels, impacts various wild life species.

Preservation of Wildlife

Wildlife Preservation Act 1972

- Act of parliament enacted for protection of plants & animals species. It has been amended many times and the last one was amended in 2022.
- It enhances punishment for illegal wildlife trade. e.g. Poaching.
- Act regulates & controls trade in wild animals, plants & their products, especially endangered species.
- Act also includes schedules of plants & animals which are afforded protection & monitoring by Government.

Habitat Conservation : It is usually carried out by setting aside protected areas like sanctuaries, national parks and nature reserves.

Government Schemes: Various Govt. Schemes like Projects Tiger, Elephant, Snow Leopard, Hangal & Crocodile will help in preservation of wild life. Recent shifting of leopards from South Africa in two phases gave a big boost to their population.

Increase Forest Cover by Earmarking Sanctuaries: Stricter punishment for poaching & cutting of trees, having more forest guards, will help in preservation of wildlife.

Strict monitoring of infrastructure projects which lead to depletion of forest cover needs to be done. Compulsory afforestation in lieu of felling of trees for various projects should be strictly monitored.

Conclusion

India is a home to a large variety of wildlife & is one of the most biodiverse regions of the world. However due to climate change, deforestation, poaching and pollution, it has led to a major reduction of various species & decrease in forest cover.

Strict implementation of the Wildlife Preservation Act, increase in number of sanctuaries, strict law & order & ban on export of animal products will help in improving flora & fauna of the country.

75. Climate Change

Introduction

Climate change or global warming is the ongoing increase in global average temperature and its effect on earth's climate system. The current rise in global average temperature is more rapid than previous changes.

The major causes of climate change are humans burning fossil fuels, deforestation, agricultural practices & industrial pollution, increasing green house gases i.e. carbon dioxide & methane and thus result in increase in global temperature.

Causes

Fossil Fuels Human activity since Industrial Revolution mainly extracting & burning fossil fuels (coal, oil & natural gas) has increased the amount of green house gases in the atmosphere resulting in radiative imbalance. Concentration of Carbon-di-oxide & methane has increased manifold and has resulted in increase in global temperature.

Green House Gases Green house gases are transparent to sunlight and thus allow it to pass through the atmosphere to heat the earth's surface. The earth radiates it as heat and greenhouse gases absorb a portion of it. This absorption shows the rate at which heat escapes into space trapping heat near the earth's surface & warming it.

Deforestation It results in emission of additional Carbon-di-oxide hence contributes towards greenhouse gas emission. The earth's land surface particularly its forests play an important role in carbon sink for CO₂. Carbon sink is process by which CO₂ is removed from atmosphere. Deforestation also releases CO₂ contained in trees plus prevents in absorbing CO₂.

Pollution Air pollution in the form of aerosols, affect the climate at a very large scale. Aerosols scatter & absorb solar radiation. It results in less sunlight reaching earth's surface. It is attributed to aerosols produced by dust, pollution & combustion of fossil fuels. Black carbon & root falling in snow & ice contribute to global warming. It increases melting of glaciers and rise in sea levels.

Effects

Environmental Effects Such affects are far reaching affecting oceans, glaciers ice and weather. Drought, heat waves, rainfall rates, Intensity of hurricanes & typhoons is increasing. Global sea level is rising as a consequence of melting of glaciers. It has led to shrinking & thinning of Arctic Sea ice.

Nature & Wildlife The size & speed of global warming is making abrupt changes in ecosystem and may result in extinction of many species. Just as on land, heat waves in the ocean occur more frequently due to climate change, harming a wide range of organisms such as corals, fish & other sea creatures. Half of global wetlands have disappeared due to climate change.

Humans Effect of climate change are impacting humans every where. Heat waves, extreme weather disaster, mental health, infectious diseases, migration, displacement, food insecurity, under nutrition, reduced availability of potable water are some of the impacts of climate change in humans.

Food & Health Climate change affects food security. It has caused reduction in global yields of maize, wheat and soyabean. Climate change also impacts fish population.

Prevention

Reduce Green House Gas Emission Climate change can be mitigated by reducing green house gas emission & enhance sinks that absorb green house gases from the atmosphere. This requires far reaching changes in energy, land, cities, transport, buildings & industry.

Use of Renewable Energy Major increase in use of renewable energy in combination with increased energy efficiency measures will help generate reduction in green house gases. Use of solar energy, hydel energy & wind energy and geothermal energy be used to reduce carbon emission. Transport should switch from internal combustion engine towards electric vehicles.

Prevent Deforestation Conversion of forest land to farms, housing or infrastructure development leads to climate change. Afforestation, strict law and order against illegal felling of trees, increase in forest guards and earmarking certain areas as sanctuaries needs to be done to prevent deforestation.

Minimize Energy Consumption Sharing Pooling of transportation, use of government transport, using energy efficient devices like LED light bulbs, using of electric vehicles will help in reducing energy consumption and further reduce carbon imprint.

Save Water It reduces carbon pollution because it requires energy to pump, heat & treat water. Use

of cold water for bathing & washing will further reduce carbon emission.

Conclusion

The world is facing a serious problem of global warming. The humans are the ones who are responsible for the same. Though it is difficult to prevent global warming, however the methods recommended above can help in mitigating the effect. Pledges made during Paris Agreement & COP 27 need to be followed rigidly by countries to ensure the limit of 2°C of global warming is maintained.

76. Sex Education

Introduction

Imparting Sex Education in India in the schools and at home is a debatable issue. Parents are reluctant to teach information about sex to adolescents because of stigma associated with the topic. More than taboo, parents feel that talking about sex is embarrassing & dirty.

The same attitude is held by teachers as they avoid teaching the topic in the school. NCERT which initiated sex education, structures it as a part of existing studies rather than a separate subject. Since a large population specially girls are not in school, the programmes run by the school are unable to reach the masses.

Need for sex education

- Increase in HIV Cases

- Alarming increase in HIV carriers in India.
- Major cause for spread of this disease to a healthy person is through physical relationship with AIDS victim.
- No cure of this disease is available at present.
- Patient suffers from social stigma and is treated as an outcast.
- Hence to save lives of children, there is a need to educate their children on moral values & discretion in choosing partners.

- Physical Assaults / Rape

- As per WHO report, one in every 10 children is sexually abused.
- Such incidents happen because parents do not educate their children against sex abuse.
- Most of the times, guilty are known to the victims.
- Children are forced to live with this trauma all their lives.
- There is a need to educate minors on their behaviours towards strangers.

- Changes in Adolescence

- This is the time when children experience changes, both mental and physical.
- They begin to see the world in a mature way.
- Parents are hesitant to discuss the problems faced during this period.
- Children being inquisitive turn to friends, internet, pornography & get wrong information which instil perverse ideas.

Problem – Sex Education

Wrong Perception It is perceived as something that teaches children to have sex rather than educating students about sex. Since the word sex is taboo in India, several terms like health & wellness curriculum, adolescent education etc are being used.

Separate Classes – Boy & Girls During sex education, boy & girls are made to sit in separate classes. The perception is that it may provoke the children to experiment. Though the aim of sex education is to help understand each other gender well, but teachers & parent do not want them to be together.

Green Signal to Experiment It is perceived that imparting information about sex is a green signal for students to experiment as it would make students envious.

Banned – Several State Ministers, parents & many groups raised concerns & even threatened with violence in case sex education is conducted in schools. Large number of states banned sex education in their respective states. However in 2018, sex education was made compulsory in schools.

Uniformity There is no uniformity in what is taught and there is no way to track that sufficient information was provided to children on these subjects.

Topics to be covered

HIV To save the life from dreaded disease, children should be taught about it, its impact & causes. Importance of upholding moral values and choosing right partners need to be explained to them.

Physical & Sexual Abuse

- Avoid talking to strangers.
- Not to be lured by gifts / sweets etc promised by elders.
- Maintain safe distance & reserved behaviours with relative.
- Teach child the names of body parts to express if any untoward incident happen and also about good & bad touch.
- Teach child to be more open & share everything with parents/teachers.

Adolescent Changes

- During this period of adolescence, parents should be friendly with their children to help them whenever needed.
- Changes in their body, due to puberty menstrual cycles, physical appearance, masturbation, nocturnal emission need to be explained in detail.
- Children should be told not to use internet for access of pornography, close monitor of children using internet be ensured.

Love

- Children should be educated that love life of a person should begin after completing education.
- Parents should inculcate true essence of love in their children

Counseling

- School plays an important role in child's development.
- Special teachers, NGOs, counselors can be employed by schools to educate young children to dispel their myths about sex.
- Boys & girls should sit together in the same class so that they know about each other well & don't consider it as a taboo.

Conclusion

Despite great strides, sex education in India is still considered taboo. It is considered by many to be a western influence that corrupts Indian Culture. Various organizations, are working with a hope to break down these taboos around sex, reproduction & homo-sexuality. The biggest barrier towards sex education in India will probably be cultural norms against talking about sex. However India is making small but important steps to provide more comprehensive sex education.

77. Chat GPT

Introduction

Chat GPT is an artificial intelligence chat bot developed by Open AI (a US based AI research lab to promote AI) and was launched in Nov 22. GPT stands for Generative Pre-Trained Transformer and is a language model which is an AI algorithm designed to understand & generate human like language.

Functions / Features

Although the core function of a chatbot is to mimic a human conversationalist, that GPT is versatile in the following ways:-

- It can write & debug computers
- Compose music
- Teleplays
- Fairy tales
- Student essays
- Answer test questions
- Write poetry & song
- Emulate Linux system
- Play games
- Simulate ATM

Chat GPT is improved version of Instruct GPT and reduces harmful & deceitful responses. Chat GPT remembers previous prompts given to it. It can be used as personalized therapist. To prevent offensive outputs, queries are filtered through open AI company – wide moderation API and racist or sexist prompts are dismissed.

Limitation

It suffers from number of limitations: -

- Chat GPT sometimes writes plausible sounding but incorrect or non-sensical answers – called AI hallucinations.
- Chat GPT has limited knowledge of events occurred after 2021.
- Chat GPT is not allowed to express political opinions or engage in political activism.

- Research suggests that GPT exhibits pro environmental left libertarian orientation when prompted to take political stance.

Service

- Launched on 30th Nov 22 by San Francisco based Open AI.
- Initially launched free with plans to monetize later.
- By 4th Dec 22 over one million users and by Jan 2023, 100 million users.
- Faster growing consumer app to date
- Service works best in English.
- Microsoft in Feb 23, showed that GPT can be used in robotics, robot arms, drones & home assistant robots.

Positives

- **New York Times** : Best AI Chat bot ever released.
- **Guardian** – Impressively detailed and human like text.
- **Tech writer Dam Gillmor** – Text generated at par with what a good student would deliver.
- **Elon Musk** – Chat GPT is scary and good not far from dangerously strong AI.
- **Google** – expressed alarm at unexpected strength of chat GPT
- **Sunder Pichai** – Google Bard being built as rival to chat GPT.
- It could assist educational goals-reference list, generating first draft, solving equations, debugging & tutoring.

Negatives

- Widespread criticism from educators, journalist, artist, ethicists, academics & advocates.
- Factually ambiguous nature of chat GPT's responses.

- Tendency of Chat GPT to hallucinate.
 - Result in cheating, job losses, discrimination, disinformation and uncontrollable military applications.
 - Cyber - Security - Chat GPT was capable of writing phishing emails & Malware.
- Helps in cheating by generating essays, papers, writing.

78. Crime Against Women

Introduction

In a land where women were traditionally worshipped as Goddesses, during recent times there has been a sharp rise in crime against women.

Crimes were happening in many cases but were not being reported because of social stigma. New age women are bolder & have courage to report.

Increased crime rate against women can also be attributed to male dominated conservative society which is undergoing transition to highly modern society. Menfolk are not prepared to accept the change.

Major Types of Crimes

Dowry Deaths

- Due to dispute over dowry.
- Harassment & torture due to demand for greater dowry results in suicide by the women.
- Setting women on fire-bnde burning.
- Average 7000-8000 dowry deaths in a year.

Honour Killing

- Examples-Refused to enter assigned marriage, committing adultery, caste marriage or rape.
- Kharp Panchayats play major role..
- Northern states- Haryana, Bihar, UP, Rajasthan, Jharkhand, HP & MP.

Witch Craft Related Murders

- Poor women from lower castes are vulnerable.

Female Infanticide/Foeticide

- Selective killing of newborn female child or termination of female fetus (foeticide).
- Incentive to have son, as daughters are considered as burden.

Rape

- Most Common Crimes in India
- It is penile / non penile penetration of a woman without her consent.
- One woman is raped in India every 20 Minutes.
- Increase in reporting of rape cases as women are getting empowered. However large numbers go unreported due to family honour or police attitude.

Marital Rape

- Forcing wives to have sex.
- 20% of men admit to forcing wives to have sex.
- Marital rape of a wife who is officially or unofficially separated is a criminal offence.

Insult to modesty

- Includes intent to outrage the modesty of a woman.

Human Trafficking and Forced Prostitution

Domestic Violence

- Is an abuse by one partner against another in intimate relationship.
- It can be physical, emotional, verbal, economic or sexual abuse.
- Almost 70% of women are victims.

Child Marriage

- Marriage of a girl of age less than 18 years.

Acid Throwing

- Violence attack by throwing acid on women.
- Lead to permanent scarring, blinder as well as social, psychological & economic difficulties.

Abduction

- Kidnapping & abduction of a girl/woman.

Causes of crime against women

- Patriarchal or male dominated Society
- No access to education to girls
- Female children are fed less than their male counterparts.
- Married women see violence as routine.
- No access to support the report of the incident. Police, doctors play a negative role in processing the report of a case.
- Money demands.
- Poor implementation of law & order.

Actions by Govts.

➤ Justice JS Verma Committee Report

Comprehensive changes in criminal laws to deal with crimes against women

➤ Criminal Law Act 2013

- Anti rape law passed
- Amendment to IPC and CrPc & IEA

➤ Management of cases

- Establishment of Rape Cases cell.
- Provide legal assistance to victims.
- CCTV'S in all police station.
- Online FIR
- Women police stations.

Increase in Punishment

- Rape- 10 years or life imprisonment.
- Rape resulting death- 20 years to life imprisonment or death
- **Gang Rape:-** 20 years to life imprisonment.
- **Acid Attacks:-** 10 years or life imprisonment & fine.

- **Touching:-** 1-5 years of imprisonment.

Stalking Crime:- 1-5 years of imprisonment.

- Fast Track of Trials:- Within two months of filing of charge sheet
- Registration of marriage:- All marriages to be mandatorily registered
- Anti Dowry Act:- Giving or taking dowry punishable with imprisonment for a term not less than five years & fine.
- Sexual harassment of women at workplace Act 2013-Any violation upto five years RI and fine.
- Protection of women from Domestic Violence Act 2005-Fast Trial of cases
- Amendment to Juvenile Justice Act 2020
- Amended in 2014
- Juvenile above 16 years involved in heinous crimes like rape be sent to observation home or regular court

Conclusion

- Though the above legislations provides adequate safe guards, the implementing agencies should expedite cases.
- Judiciary to be more accountable & forth coming in dealing with cases promptly, unbiased & Fair Trials be done.
- Media to play a very responsible role in generating awareness & moral values of society
- Need to change the patriarchal mindset of the society.

79. Drug Addiction

Introduction

- Drug addiction also called substance-use disorder, is a disease that affects a person's brain and behaviour. It leads to an inability to use of illegal drug or medicine.
- Substances such as alcohol, marijuana, nicotine, cocaine, heroine, codema etc are considered as drugs
- An addicted person may continue using the drug despite the harmful effect it may cause. As time passes the dosage of drugs keep going higher.

Causes of Drug Addiction

Stress

- The highly competitive and success-oriented style of living creates many problems for a large section of younger population
- Most of the youths are not mentally & physically tough to deal with the crisis they face one after another.
- Drugs act as a safety valve to reduce them from stress, inhibition, shame, melancholy or disappointment in life.

Bad Company/Peer Pressure

- Environment plays a main role in developing drugs dependence. If a child grows up in a family where drug addiction is common, it is highly likely that he is going to give in to this addiction.
- Abuse of drugs among friends and peers is a very important reason for getting into drug addiction.

Psychological Causes

- Psychological factors also play important role in drugs addiction.
- Sexual or physical abuse, negligence by parents and domestic violence can lead to psychological stress. People suffering from these problems turn to drugs to let off their stress

Stress: Psychological causes

- Mental disorder such as depression
- Lack of friends in school or poverty.
- Huge academic pressure

Relatives & Family History

- Genes play a greater role in addiction to drugs. Body & brain react to a particular drug the way ancestors reacted to it. Chances of being attracted to drugs increases drastically if the presents or their parents had a history of drug abuse.
- Broken Homes, unemployment of parents, alcoholity of father, neglect of children at the hands of parents. Other members of the family can lead to drug addiction.

Easy Availability of Drugs/Poor Law & Order

- Majority portion of the drug problem in India is from Afghanistan and Pakistan whereas only a small portion is management induced.
- Availability of drugs or accessibility of drugs is one of the important factors responsible for the increasing drug abuse during recent times.
- Drug syndicate are becoming more creative to pamper people to be involved in drug abuse. Once a larger number of people get addicted, the drug syndicate would not need to worry about resource of business. A drug addict would always find ways and means including illegal ones, to obtain the drugs.

The Narcotic, Drugs and Psychotropic Substances Act 1985 (NDPS ACT) came into force and under this Act, it is illegal for a person to produce, manufacture, sell, purchase, transport, store or consume Narcotics drugs or psychotropic substances.

However poor implementation of this Act by police, corruption, mafia and smuggling of drugs across the border have not helped in curbing this menace.

Effects of Drug Addiction

- It is a psychiatric, psychological and social problem affecting the youths of the country.
- It affects individual and the society socially, physically, emotionally and economically.
- It acts on the brain into disorders to include fear, anxiety, insecurity, loss of appetite, weight, irritability & empowerment.
- Addiction to narcotics causes loss of appetite, weight & lack of sexual.
- It may also lead to epilepsy and delirium.
- Marked confusion, distortion in thought process, delusions and hallucinations.
- Reduced cognitive operations make difficult for the youth to develop a functional set of values & leads to poor academics personality growth.
- Judgement, observation and attention gets damaged.
- It disturbs family ties and creates marital discords. The addicted gets alienated from the mainstream of the family & society

Prevention

- Family:- The affected families have a major role to play to bring back the youth into the mainstream. The parents should take care of their children sparing more time for them & spending quality time. The child must be given more care & love from his parents who are neck deep into their problems.
- Children are prone to drugs during the onset of adolescence. During this period parents should be friend to their children and love them.
- They should also give them knowledge about the effect of drugs by explaining them the implications.

Drug De-addiction Centres / Rehabilitation Centres

- Drug de addiction Centres are wards in hospital/clinics, where alcoholics & drug addicted persons are kept for detoxification and de addiction.
- These centres provide community based sources for awareness, identification, and counselling

de-addiction, after-care & reintegration of addicts into the mainstream.

Check on Availability/ Strict Law & Order

- Through the NDPS Act of 1987 amended in 1988, Narcotic control Bureau was established to control the drug menace.
- As per the above act, the drug offences are non-bailable.
- However the law enforcement agencies need to be more effective & accountable.
- Govt. should ensure destruction of entire drug feeding crops.
- Society should also play a responsible role towards the maintenance and help to Govt. in eradicating it.
- NGO'S like Narcotic Anonymous, can play a major role in counselling and treatment to drug addicts.

Peer Pressure

- Peer Pressure plays an important role in drug abuse. Close friends hold more affect over behaviours compared to strangers.
- Children when pushed to participate in drug abuse, which is something they do not want can employ these steps to avoid the activity.
 - Refuse to participate by avoiding eye contact and saying no in firm voice. This many cause a culprit to back off.
 - Leading a healthy lifestyle, physical activities, playing games etc.
 - Keeping good company

Conclusion

There is a definitely a need to understand & solve such a person's problem which have engulfed the youth of today.

The affected families, communities, social workers, NOG's, Media, Govt and Law enforcement agencies must work in tandem. There is a hope of millions of youth who will manage to come into the mainstream.

80. India's Options to Deal with Cease Fire Violations by Pakistan

Delineation of Line of Control

On 02 July 1972 Simla Agreement was signed between Pakistani President Zulfikar Ali Bhutto and Indian PM Indira Gandhi, which paved the way for peaceful negotiations between the two countries. The Agreement identified J&K as a bilateral issue and called for both countries to "settle their differences by peaceful means through bilateral negotiations".

The agreement also converted the cease-fire line of December 17, 1971 into the 'Line of Control' (LOC) between India and Pakistan and it was agreed that "neither side shall seek to alter it unilaterally, irrespective of mutual differences and legal interpretations".

India decided to construct the Border fence to prevent cross border terrorism and illegal smuggling of arms/ammunition and narcotic substances. The construction of the barrier was begun in the 1990s, but slowed in the early 2000s as hostilities between India and Pakistan increased.

In Nov 2003, a Ceasefire Agreement was signed between India and Pakistan and by September 2004, the fencing in J&K was completed. The infiltration of militants has reportedly been reduced to 80% after the border fence has been erected.

Reasons for Ceasefire Violations' by Pakistan

Some of the compelling reasons for Pakistan to violate the Ceasefire Agreement of 2003 are as follows:

- Provides covering fire to militants while infiltrating into J&K. Infiltration and sustenance of Pak militants after it snows heavily in the higher reaches becomes difficult, so maximum ceasefire violations occur pre-winters in their desperate attempt to infiltrate maximum militants.
- Pakistan wants to demonstrate solidarity with the separatists of J&K by resorting to heavy

firing along the LOC, during the visits of dignitaries'.

- Pakistan wants to highlight the issue of J&K at world forums. The provocation at the border is heightened to draw reaction from India, which would label J&K as a disputed territory.
- Conventionally, any political party that has ruled Pakistan during the short democratic interludes, has done so through 'India bashing' and displaying solidarity with the separatists of J&K. Hence, through ceasefire violations the political masters of Pakistan demonstrate their 'so called' solidarity to 'the cause'.
- The stated policy of the Pakistani establishment is to 'bleed India from a thousand wounds' by fighting the low cost and highly effective, Low Intensity Conflict with India.
- Pakistan Army and ISI want to keep the issue alive to maintain their position of prominence in Pakistan. In case they do not display their continuous aggression, their authority and credibility will get a beating in the eyes of the people of Pakistan.
- The recent threat by Al Qaida to establish its militant wings in India and the support assured by Pakistani Jihadist elements and Taliban's to ISSI has served as a catalyst for Pakistan to activate its cross border provocations with renewed vigour.

Is All Out War an Option for India?

It needs to be understood that both India and Pak are Nuclear powers and if the situation deteriorates beyond a point, it might escalate to a full scale war.

A conventional war in the present world order will immediately bring the pressure of the world community to annul the war. Besides, it may result into what is called, MAD (Mutually Assured

Destruction) between Nuclear powers, in which no one ends up a winner.

Though the strength of Indian Armed Forces in numbers is roughly twice the size of that of Pak (1.2 million: 5.6 lac), however, considering our six other borders with not so friendly neighbours, we would get restricted to apply forces at a given point against Pakistan.

Hence, Pakistan will be able to achieve near-parity of troops at the decisive points of engagement. So the general notion that India will simply run over Pakistan and completely annihilate it may not be so true.

Therefore, during such a short duration, high intensity war, both sides will suffer avoidable casualties, without really being able to solve the core issue. When we look at the outcome of previous wars of 1965, 1971 and the Kargil conflict, though we could inflict more casualties, capture more prisoners of war, but the issue of J&K still persists.

In order to explain the above point, let us consider the Kargil conflict, though India is viewed to have been victorious by being able to regain its lost territory, Pakistan actually had the last laugh by inflicting so many casualties on Indian bravehearts, highlighting once again before the world community that this is a highly volatile disputed territory that may act as a nuclear flash point, and later, simply evicted those hostile hill features which always belonged to us.

Besides, a conventional, full scale war will also economically drag our country backwards by a couple of decades.

India's Options to Tackle the Situation

Options available with India to address the unprovoked ceasefire violations are given below:

- Military retaliation should be measured, but 'decisive and damaging'. The identified staging areas of jihadists along POK (identified through improved intelligence network, by using human intelligence and technological devices) to be totally degraded using precision gilded weapon to avoid collateral damage.
- The retaliatory pounding must be extremely strong and should generate fear psychosis in the minds of Pakistani field commanders. The same may require heli-lift and deployment of heavy weaponry to the forward areas by Indian Army.
- Mobilize world opinion to call Pakistan's bluff, apply coercive diplomacy and at the same time indulge in meaningful bilateral talks, & include all stake holders in such discussions.
- Endeavour to win the 'hearts and minds' of the local population, by supporting and promoting their interests, by way of ensuring their safety, security and above all dignity.
- Encourage and create investment climate in the J&K, create employment opportunities, improve infrastructure, promote tourism in a major way, etc.

Put into place a credible Psychological drive to favourably shape the opinion of the people of J&K, through visible means of promoting communal harmony, awareness about India's genuine intent to safeguard their interests and highlighting the damage being caused to the state by the separatist elements and the nefarious designs of Pakistan.

81. Right to Privacy

Introduction

A number of petitions had been filed in the court that challenged the mandatory use of Aadhaar cards which assign a unique 12-digit ID to every citizen. The Aadhaar database links Iris scans and fingerprints to more than a billion people.

The government of the day insists that the Aadhaar should be made mandatory for all financial transactions to bring about transparency in dealings and to act as a tool to curb corruption.

Also, the government feels that the data collected by the Unique Identification Authority of India (UIDAI) can help targeted dissemination of the benefits of the government welfare schemes to the deserving.

However, the Supreme Court in its landmark verdict unanimously passed by a nine-judge Bench on 24 August 2017 stated that privacy is a fundamental right that, it is intrinsic to life and liberty and thus comes under Article 21 of the Indian constitution.

Finally on 26 September 2017, the Supreme Court, addressing the concern on data privacy ruled that linking of the identification card with private services was illegal. The ruling ended all confusion regarding the services for which Aadhaar is mandated.

As per the SC verdict, linking of the Aadhaar number will NOT be mandatory for the following services:

- Employee pension;
- Re-verification of mobile number;
- Bank accounts;
- Mutual fund investments;
- Insurance policies;
- Credit cards;
- New or existing post office schemes;
- New or existing NSC accounts;
- New or existing PPF accounts; or
- New or existing Kisan Vikas Patra.

Further, private firms and websites selling air, train, rail and movie tickets cannot ask for

biometric and other data from consumers for their services.

The 12-digit UID number, however, will continue to be mandatory for filing income tax returns and for applying for a personal account number (PAN).

Emergence of the Debate on Right to Privacy

The Privacy Bill was tabled in the Parliament in 2011, with the motive to provide for the right to privacy to citizens of India and to regulate the collection, maintenance and dissemination of their personal information and for penalization for violation of such rights and matters connected therewith.

The debate regarding right to privacy has been going on ever since the 1950s. Earlier, in 1954, a six-judge bench had ruled that privacy is not a fundamental right. The same decision was upheld by an eight-judge bench in 1962. They said that privacy was a common law right which when violated can be compensated.

The ongoing constitutional challenge to the Aadhaar card scheme of the Union government was at first considered by a three judge bench of Supreme Court in August 2015.

The three-judge Bench opined that in order to quell the controversy, it is better that the jurisprudential correctness of right to privacy as a fundamental right is authoritatively decided by a Bench of appropriate strength.

A 5-Judge Bench was constituted in October 2015, which recommended setting up of a nine-Judge Bench.

The nine-judge Bench of the Supreme Court has ruled on 24 August 2017 that the 'right to privacy' is protected as an intrinsic part of the right to life and personal liberty under Article 21 and as a part of the freedoms guaranteed by Part III of the Constitution of India.

Implications of the Supreme Court Ruling

The Union government has already issued an office memorandum on 31 July 2017, by which it

has constituted a committee to "suggest a draft Data Protection Bill".

The terms of reference defined for the above said Committee pertains to the "study of various issues relating to data protection in India" and "to make specific suggestions for consideration of the central government on principles to be considered for data protection in India and suggest a draft data protection bill".

Besides the Aadhaar, criminalization of homosexuality under Section 377 will also become a matter of contention after this verdict. The validity of the provision will raise further questions as homosexual relationship between consenting adults will be seen under the purview of privacy.

Moreover, a favourable verdict on the right to privacy also poses a challenge to the validity of WhatsApp's new privacy policy.

Personal and National Security Concerns

The terms of reference of the committee set up by the government to "suggest a draft data protection bill" does not encompass all aspects of privacy and data protection in the era of e-commerce, drones, Google maps, Face book, Twitter, smart phones, etc.

The Parliamentary Standing Committee on Information Technology that examined the work of department of electronics and information technology has raised certain questions pertaining to personal and national security, like:

- India's surveillance and interception of data sent through e-mails by National Security Agency of the US, as brought out in the revelations by Edward Snowden, Chelsea Manning and Wiki leaks need to be scrutinized.
- The security ramifications of storing UID/Aadhaar data on unsecure 'cloud' and the

failure to enact a legal framework for right to privacy.

- Government's imposition of obligation of disclosure of information and further linking it to bank accounts and mobile numbers makes it vulnerable to hacking.
- Installation of checks and balances/ measures against impersonation by certain individuals at the time of enrolment for issue of unique identification numbers.
- Measures to prevent manipulation of biometric information.
- Security and privacy concerns owing to the UID data presently hosted in a private data centre and not hosted in a government data centre.
- Lastly, the proposal to converge the UID data with electoral database, and EVMs can make the secret ballot system vulnerable to hacking and has the potential of hijacking India's democratic system.

Conclusion

It is important for the government to collect the data for more targeted dissemination of benefits of various government welfare schemes to the citizens who need it the most. Besides, it can play a vital role in controlling corruption, as well as address the issues of illegal immigrants.

However, unless we can address the two conflicting requirements of collecting and using data ethically, and the need to create a robust mechanism to safeguard and secure the data so collected, as also ensure that it does not impinge upon the privacy of the citizens, the debate on the subject will continue to rage.

82. Free Basics and Net Neutrality

Introduction

The Founder and CEO of Facebook, Mark Zuckerberg had launched Internet.org on 20 August 2013, purportedly to bring affordable access to selected Internet services to less developed countries by increasing efficiency, and facilitating the development of new business models around the provision of Internet access.

The services to which access is supposedly being offered, without any data usage, is communication, healthcare, education, job listings and farming information.

Internet.org is a collaboration between social networking services company Facebook and six mobile service providers, namely, Samsung, Ericsson, Media Tek, Opera Software, Nokia and Qualcomm.

Until April 2015, Internet.org users could access (for free) only a few websites and Facebook's role as gatekeeper in determining what websites were in that list was widely criticised for violating 'net neutrality'.

In May 2015, Facebook announced that the Internet.org Platform would be opened to only those websites that met its criteria.

In September 2015, the app delivering these services, was renamed **Free Basics**. This platform is being jointly offered by Facebook and Reliance, the sixth-largest mobile service provider in the country, for free data services restricted only to a few websites.

In the wake of widespread opposition, owing to violation of net neutrality, the Telecom Regulatory Authority of India (TRAI) has stopped this service for now, pending public consultation on the subject.

Facebook has launched a major campaign essentially to influence the outcome of the public consultation and that is precisely the reason for the multiple notifications, being received by all of us daily.

Before we dwell upon the implications of Free Basics, we need to first understand the connotation of net neutrality.

Understanding Net Neutrality

The controversy about the issue of "net neutrality" had initially erupted when a "Consultation Paper", said to have been mooted by Airtel, was put forth by Telecom Regulatory Authority of India (TRAI) last year.

This Consultation Paper had obliquely suggested the removal of "Net Neutrality" and proposed to allow the Internet Service Providers (ISP), like Airtel, Reliance, Vodafone, etc, to block apps and websites and restrict their availability as a paid service to the customers.

This said development was a direct outcome of intense lobbying by the telecom operators to enable them to extort more money from the consumers and businesses.

Salient Features of Net Neutrality

- **Equal and unrestricted access** to all lawful sites.
- **Same speed of access** for all subscribers of all apps and websites at the level of telecom/ ISP.
- **Non discriminatory data cost** per KB/MB for access to every site.
- **No censorship or selective access** to any information available on the net.
- **No preferential treatment** for any particular website in terms of speeding up its access, or making some sites free over others.

Contentions of the Telecom Operators on the Issue

Telecom operators obtain licence from the government to provide the channel for various networks and applications. They are required to pay Entry Fee, License Fee and Spectrum Usage Charges, and have regulations regarding quality of service; tariff and consumer protection regulations.

Revenue paid to the government is based on the size and the bandwidth of the spectrum bought by them and they in turn make money primarily from data usage by the consumers (individuals and enterprises).

Till some years back networks were built around specific applications, say voice, internet or Pay TV, i.e. voice, message and video content. And telecom operators used to charge for the data usage for these services.

The procedure that was being adopted was that if a consumer bought an app/ content, the telecom operators did the billing and the content provider had to depend on the telecom operator for its revenue share from the amount collected by the telecom operator.

In the recent times, major source of traffic on the net has shifted to Google, Yahoo, MySpace, YouTube, Facebook, Wikipedia.org etc, which are not owned by the telecom operators.

Also, because of the computerisation of the banking system, the telecom operators' have no control over the billing and the Internet businesses can easily bill directly through Internet banking.

Hence, the revenue being collected by the telecom operators has declined phenomenally.

Further, the system of auction of the telecom spectrum has heightened the competition and resulted in reduction in their profit margins.

Thus, the telecom operators' have neither any control over the content nor on the billing of the apps and services being provided on the net and because of their declining profit margin they want that the net neutrality should be removed.

Likely Consequences of Removal of Net Neutrality

Telecom operators might discriminate against certain types of content and political opinions. This will hurt consumers and diminish innovation in apps and content spaces.

Cartel of telecom operators may degrade traditional internet access to force apps and content providers to use the telecom operator's new "premium" services. They may impose this through discriminatory pricing and give incentives

to favour their own services, applications, and content and to kill competing services.

Telecom operators may compete for contents by charging different fees for different content providers (e.g. Google, Flip kart, etc), which will result in certain content being available only with certain telecom operators, causing fragmentation of the internet.

Telecom operators will curtail the freedom of expression and right to information by restricting the access to the internet by the consumers.

Telecom Operators with their innate market power will endeavour to have exclusive tie-ups with an established App. The ability of smaller and start-up Apps to compete with established Apps will be adversely affected and may deter start-ups from joining the market.

Finally, if the net neutrality will be removed, Internet access will become costlier.

Implications of Free Basics

First and foremost we need to understand that Free Basics is not free. It is a platform being provided by Facebook and only a few other websites and services that are willing to partner Facebook's proprietary.

Presently, there are one billion websites and about 3.5 billion internet users. In other words it means that one out of every 3.5 internet users also offer content or services.

Internet free of gatekeepers is what has given a huge incentive for generating innovation and creating content. This is what has made the Internet, as a platform, so different from other mass communications platforms such as radio and television.

In case the Internet Service Providers (ISPs) or telecom companies are given the right to act as gatekeepers, they would then dictate what part of the Internet or which websites we can access.

The advertorial campaign run by Facebook talks about education, health and other services being provided by Free Basics, without explaining, as to how to access education or doctors and medicines through the Internet.

Besides, in India if people were to access education or health services, they need to access

it in their regional languages, and not in English. Internet cannot be a substitute for educational institutions or hospitals, it can perhaps only complement.

Next major drawback for the internet users will be that Face book will have access to all our apps' contents. In other words it would imply that Facebook will have an unencrypted data of health records of all Indians. The same can have deep and disturbing implications.

Lastly, the danger of privileging a private platform such as Free Basics over a public Internet is that it is likely to introduce a new kind of digital divide among the people. A large fraction of those who will join such platforms may come to believe that Facebook is indeed the Internet.

Conclusion

In the present times, internet has become the fundamental source of knowledge, a primary means of communication and a cardinal channel for flow of trade and commerce. Therefore, whosoever controls the data oceans would control the global economy.

It is imperative that we understand that Free Basics will provide Facebook with an overriding control, monopolise only a select Internet Service Providers, restrict new start up apps, defunct existing small players and provide unencrypted data to Facebook. Thereby, nullify the very tenets of 'Net Neutrality'.

83. Role of Free Media in a Democracy

Introduction

The mass media to day encompasses newspapers, books, radio, television, cinema, Internet, e-mail, fax etc. Although the use of Internet, e-mail and fax seems to be a recent phenomenon, the other mediums have co-existed with each other for many decades. The audiovisual medium scores over the written word, still the latter holds its ground. The media has the ability to penetrate the remotest part of the earth and can make us feel its presence in every place. In 1991, during the Operation Thunderstorm, America waged war against Iraq for invading Kuwait. This was telecast live by the CNN, showing the presence of media - even in the hostile regions of the world.

The Print Media

The print media enjoys great readership. The advent of the audio-visual media has – never threatened its existence. Some of the journalists in fact, enjoy great fan following and are respected for their work. Indians have to their credit the Nobel Prize; the Booker Prize and the other accolades from the literary circles. Banning of the books like "The Satanic Verses" by Salman Rushdie has throttled the freedom of expression. The acts of the notorious paparazzi have maligned the reputation of the media. It is perhaps the readers wish to gain access to the private lives of the rich and the famous that drives he pauperizes to literally chase them. Another criticism is that some newspapers delve into yellow journalism. The print media have to understand their power and reach. The media could make a great impact on its readers. So, it should shoulder the responsibility of giving only the true picture and not a biased one.

The Audio/Audio Visual Media

The audio and the audio-visual media incorporate radio, television, theatre, drama etc. The media scores over the written word because it takes the viewer at the place of action. Developing countries like India can rely on the media for mass communication. The media can be used for disseminating Information and imparting education to illiterate masses.

Main Merits of Media

The media can aid public involvement through advocating and transferring knowledge, skills and techniques to the people. Awareness about the various rural development programs could be achieved by using the media. Lack of awareness about the different programs is responsible for the low-key progress, which hinders the national development process. In the urban sector, the media should be used for infotainment that is for both information and entertainment. As the media enjoys a wide reach, it should not distort news and present an un-biased picture before the audience. It is for this reason that in India, Prasar Bharti Bill was introduced. It is a right step in providing autonomy to the media.

The Role of Cinema

Cinema too has a deep influence on the people. The audiences tend to follow the mannerisms of the heroes and the heroines so the actor should not portray anything on the screen, which could have a negative influence on the audience. In India, at present, cinema is going through a phase of eroticism. Therefore the media needs to be kept under constant vigil. An attempt was made to ban the film "Fire" but the censor board upheld its earlier decision and passed it uncut. Apart from giving it a good publicity, the so-called restorers of culture could not thwart its screening. It should be left to the audience to choose what it likes to reject and what it does not.

The Internet

With the advent of the Internet, e-mail and fax, the world has really shrunk. Any person can have an access to the information, at the various websites, with computer. All major newspapers, magazines, satellite channels have their sites on the Internet. A person, who is unable to go through a newspaper or watch television, can gain access to the latest information by browsing through the respective sites. All these inventions have shrunk the globe to such an extent that the world can be called "a global village".

Conclusion

The media today, enjoys a wider coverage and viewership, than perhaps a decade ago. It has survived and kept up its values to this day. Some stray incidences have tainted the image of the media but it has constantly worked to restore it .It is true that man has a Free Will and Freedom of Expression, but they need to be checked. The

people in the media should feel responsible towards the audience. Only then can the media uphold the value. A governing body should be present to monitor the working of the media. This body should work in an unbiased manner. The media and the governing body should work jointly to achieve the various objectives.

84. Water Cycle

Background

The fundamental part of the water cycle is evaporation, a constantly occurring phenomenon that involves formation of vapours from the surface of water bodies and canopies of plants through heating. Unplanned urbanisation, massive deforestation, burning of fossil fuels and resultant rising of earth temperatures have collectively disturbed the water cycle. All these factors have collectively disturbed the once well defined seasons, which seem to be going awry. Now we frequently have long and extended winters, extreme hot summers leading to draughts and forest fires, heavy rains leading to floods and devastation.

Contributing Factors

Rapid and unplanned urbanisation has led to replacement of porous soil surface with concrete structures, which has almost zero infiltration capacity. These have drastically reduced the recharge capacity of the soil.

Large scale deforestation in mountainous areas is leading to higher water runoff rate, thereby depriving the hilly areas of the rainwater which would have seeped into the soil. The rising earth temperatures are also leading to quicker evaporation leading to lesser seepage into the soil. As a result of a disturbed water cycle, rain patterns have also changed. Compared to the past, rainfall now is high in intensity but shorter in duration which aggravates soil erosion and runoff intensity. Trends in the past few years have categorised 15% to 54 % of rainfall in the last few years as 'extreme'.

Impact

A recent study by Central Ground Water Board has shown that there is a drastic fall in the groundwater level in most urban areas, going to as much as 20 meters below ground level (mbgl). The higher the mbgl, more the need for recharge. This is likely to cause grave water crises in times to come unless urgent and effective steps are not taken for water conservation and restoring the

pristine water cycle. Much of the water is required for agriculture and industry.

Corrective Measures

Afforestation : Concept of 'Urban Forestry' needs to be followed to check rapid urbanisation, to decrease pollution, facilitate better ground water recharge and to counter runoff losses. Municipalities must effectively plan and execute area specific afforestation including in private properties. New species of plants need to be developed which help reduce pollution and help retain more water. Natural vegetation in the rural areas has been replaced by crops. Rural afforestation policies must include trees on roadside, along the canals and other water bodies and private farm houses.

Rainwater Harvesting: Nearly 70% of the rainwater is not harnessed and finds its way into the oceans, especially since the rains have become more brief and intense. It must be ensured that all houses in urban areas cater to rainwater harvesting, where the water is used for recharge of ground water, or for non-drinking purposes. There should be sufficient green belts in all urban areas. In rural areas, excess rain water should be channelized into village ponds. The unlined reservoirs can be used to recharge ground water, whereas lined reservoirs can be used for micro-irrigation. Village ponds must be periodically excavated to increase seepage.

Recycling Waste Water: Almost entire waste water from houses and commercial set ups flows the sewers and streams into the rivers and oceans. This water, which otherwise pollutes good quality of ground water, can be used for non-drinking purposes after treatment. This especially applies to industry. Electricity and water supplied to the farmers should not be free of charge so as to bring in some caution.

Our water resources being at a premium, it is imperative for individuals and policy makers to be very judicious. Government strategies must focus on an integrated approach for water cycle management to avoid a looming water crisis.

85. Students and Politics

Introduction

The question of the participation of students in politics has always evoked a lot of discussion. It has been a very controversial subject. The two groups of people have expressed two contrasting opinions. Both the groups are equally convinced of the merits of their cases. The discussion goes on between the students, teachers, politicians and other well wishers of the student community. In spite of their best efforts, no satisfactory or convincing solution has so far been found out.

Opposition to Participation of Students in Politics

Those who oppose the participation of students in politics put up a strong case. They argue that politics is the last resort of a scoundrel and is a dirty game. It creates groups and parties and leads to permanent enmities. It disturbs the peace of mind of the students. The primary duty of a student is to pay single-minded attention to his studies. He is supposed to lead a life of penance or Tapasya.

He cannot afford to take part in the luxury of politics. Politics causes a great interference in the studies of the students. Interest in politics leads a student to an active participation in strikes, demonstrations and processions. At times, it brings him into a serious clash with the college authorities or the police. May be he lands himself in jail. All this disrupts his studies and he is pushed off the rails. He loses his real purpose in life and goes astray. Participation in politics thus spoils a student's career and makes him useless for any purpose other than strikes, demonstrations and slogan shouting.

The Supporters

Those who support the participation of students in politics make out an equally strong case. They argue that education does not mean mere literacy. It means a total and all-round development of a student's personality. It makes him aware of what is happening in his country and in the world around him. It also develops in him the qualities of leadership. Instead of being a timid, shy bookworm, he grows into an

aggressive, dominating and alert young man who knows how to fight a battle of life.

Participation in politics trains a student to be a good citizen. It gives him training in the democratic way of life. He grows into a responsible and cultured citizen who is an asset to the nation. It creates a sense of patriotism in him. He knows his duties towards his country; He has a fair knowledge of the world. He develops debating skill and he can always put forward his point of view with force and conviction. He develops all the qualities of head and heart. He is trained for leadership. As a leader in the making, he develops such qualities as courage, sincerity of purpose, a spirit of service, sympathy for the fellowmen, self-discipline and devotion to duty.

Student period is the formative period in one's life. A student must develop all such qualities in him during this period so as to enable him to lead a successful life. If we study the lives of our great leaders, we shall find that most of them did take an active part in politics even during their student days.

Lyngdoh Committee Recommendations and The Inevitability Of Student Politics

The recent interim order of the Supreme Court to implement the Lyngdoh committee recommendations on students' union elections is widely accepted by the academic community. Sri. J.M. Lyngdoh, appointed by the MHRD on the direction of the Supreme Court in December 2005, had to study on the diverse specifics of student union elections in order to examine the alleged criminalisation in student union elections, financial transparency and limits of expenditure involved in such elections, eligibility criteria for candidates contesting in such elections including the maximum age limits and minimum standards of academic performance, and the need to establish a forum to address grievances and disputes arising out of such elections.

Need for Campus Politics

"Political activities in the Universities is natural because the university is a community of thinking

people, of those who are exploring the frontiers of knowledge and of those who criticize and evaluate every idea before accepting it. Presentation of debates about different ideologies and plans and perspective of national development are to be welcomed and political activity directed towards this end would be wholesome for the growth of the universities.

The committee while recognising the importance of campus politics is immensely critical of its wide-ranging mistreats. It is a fact that in many places, especially in many north Indian campuses, student politics is manifested with muscle and money power. The active presence of constructive politics and true democracy can effectively defend the anarchy and disharmony in campuses. Political parties need not intervene in the campus elections. The spirit of the Lyngdoh committee report, which expressed strong observations about the need for organizational liberty and necessity of students' union elections to the democratic bodies can be an eye opener to all those who are engaged in malicious campaign against campus politics.

The Lyngdoh Committee report also refers to the evidences of the harassment faced by the students in the so-called "non political campuses." The college authorities in the name of campus decorum often used to crush even genuine protests of the students against such misdeeds and exploitation. The Committee further noted various instances of harassment of students by the faculty and the administration, including sexual harassment, charging of capitation fee for getting admissions as well as in the name of 'infrastructure facilities' to the students, and the imposition of unusually harsh norms on day-to-day student life under the pretext of maintaining discipline in the institution etc. The committee, taking into consideration all the above-mentioned aspects arrived at the conclusion that the democratically elected body of students in campuses and universities is inevitable and recommended immediate measures to establish such bodies.

Right to decide mode of Elections

One of the important recommendations of Lyngdoh Committee is about the right of universities to decide the mode of elections. The

committee while recognizing the autonomy of the university recommends, "Subject to the autonomy of the universities in respect of the choice of the mode of election, all universities must institute an apex student representative body that represents all students, colleges, and departments coming under the particular university. In the event that the university is wide spread, individual colleges may constitute their own representative bodies, which would further elect representatives for the apex university body". In accordance with the above recommendations, urgent steps to conduct elections are sought in the campuses including those where nomination system exists. While acknowledging the choice of the mode of election inherent with the university autonomy, **the committee suggests the following modes of elections.**

- (a) For small universities with a relatively smaller student population the committee prefers direct election i.e. a system of direct election of office bearers of the student body whereby students of all constituent colleges, as well as all students of the university departments vote directly for the office bearers.
- (b) For bigger universities with a large number of affiliated colleges, the committee prefers both the direct and indirect forms of elections.

The Lyngdoh committee recommendations designed to streamline the election process are broadly welcomed in the academic domain. The committee not only entertained the argument that the academic excellence was an eligibility criteria for contesting in the elections but rejected even the High Court finding that allowed the education institutions to prohibit political activities within the college campus and forbid students from organising or attending meetings other than the official ones within the college campus.

Lyngdoh Committee report is indoubtably a set back for the so-called apolitical intelligentsia who tried to eliminate the democratic culture from our campuses in their eagerness to dance to the tunes of certain vested sections. It is the capitation fee of the colleges and reactionary political ideologies that are afraid of students participating in political activities.

Indisputably, the Lyngdoh committee recommendations will become a well-built weapon to the progressive student movement that consistently fights to ensure democratic rights of the student community. It is also absolutely a set back for all the reactionary forces

that try to eliminate the progressive ideology from the campuses by promoting apolitical ideas, destroying creative potentialities and crushing democratic rights of students.

86. Role, Capabilities and Modernisation Plan of Indian Armed Forces

Introduction

The primary role of the Indian Armed Forces is to maintain territorial integrity, defend country against insurgency and foreign aggression, provide assistance to civil community in an event of a natural or manmade disaster, subscribe troops for UN peace keeping missions and finally, maintain a high standard of operational preparedness to face all the above eventualities.

The Ministry of Defence (MoD) or Raksha Mantralay is charged with the responsibility of co-ordinating and supervising all agencies related to the overall defence of the nation, including, the functions of the government in national security and the upkeep of Indian Armed Forces.

The Ministry of Defence consists of four Departments: Department of Defence, Department of Defence Production, Department of Defence Research & Development, and Department of Ex-Servicemen Welfare.

The Department of Defence Production is responsible for the indigenous production of equipment used by the Indian Armed Forces, with 41 Indian Ordnance Factories and eight Public Sector Undertakings (HAL, BEL, BEML, BDL, MDL, GSL, and GRSE).

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

Indian Armed Forces, with the President of India as its Supreme Commander, comprises of four military (Army, Navy, Air Force and Coast Guard) and two paramilitary organisations (Assam Rifles and Special Frontier Force, e.g. Ladakh Scouts).

Indian Armed Forces is the world's third largest (after USA and China) and maintains strength of 1.3 million active personnel and 2.1 million on the reserve list (after superannuation from the forces/ on retirement all personnel remain on the reserve list for two years and can be called back on active

duty in certain extraordinary circumstances). The strength of paramilitary personnel is 1.3 million.

The Chiefs of Staff Committee (COSC) & the Integrated Defence Staff (IDS)

The Chiefs of Staff Committee was appointed on 01 October 2001. The primary aim of setting up the COSC was to fulfil the need of providing an institutionalised framework for Defence Management at the highest level.

All the three service chiefs, i.e. Army, Navy, Air Force and the chief of the Integrated Defence Staff (IDS) compose the Chiefs of Staff Committee. The Scientific Adviser to the Minister of Defence is invited to attend, if and when required.

The member of the Chiefs of Staff Committee, who has been the longest on the Committee, holds the appointment of the Chairman of COSC.

Chiefs of Staff are the authority for advising the Defence Minister and normally through him the Cabinet Committee on Political Affairs on all military matters which require ministerial consideration.

The Integrated Defence Services (IDS) is in effect the principal functional arm and Secretariat to the Chiefs of Staff Committee. It was created by the Government on 23 November 2001, based on the recommendations of the Group of Ministers which was set up in 2000 (post-Kargil) to review India's defence management.

The HQ IDS is staffed by officers and personnel from all the three services, with the primary aim of bringing about a high degree of synergy between the Armed forces.

The IDS is headed by the Chief of Integrated Staff as the Chairman.

Chief of Defence Staff

At present, the senior most chief from any of the three services assumes the appointment of the chairman of COSC. Hence, there is no permanency in this "single point contact" agency, created with

the view to bring about synergy in tri-service operations. Also, the tri-service command is headed by a three-star officer junior to the military chiefs who are four-star.

In order to remove adhucism, improve continuity and promote jointness in planning, operations and modernisation of the three armed forces, the decision that was taken after the Kargil conflict of creating the appointment of Chief of Defence Staff, will be implemented soon.

The post of the Chief of Defence Staff is be of a four-star who would be in-charge of the tri-services command at Andaman and Nicobar islands, the strategic command in-charge of nuclear weapons along with the upcoming cyber and space command.

Career Options in the Armed Forces and Paramilitary Services: Please click this link to see the eligibility criteria for various options that you may have to join the uniformed forces: <http://india.gov.in/spotlight/career-defence-and-paramilitary-forces#defence4>

Indian Army

General

The Indian Army is administratively divided into six tactical and one training commands, each is headed by a Lieutenant General:

- Northern Command headquartered at Udhampur in Jammu and Kashmir.
- Western Command headquartered at Chandimandir in Chandigarh.
- Central Command headquartered at Lucknow in Uttar Pradesh.
- Eastern Command headquartered at Calcutta.
- Southern Command headquartered at Pune in Maharashtra.
- South Western Command headquartered at Jaipur in Rajasthan.
- Army Training Command headquartered at Shimla in Himachal.

Besides these, there are two joint commands whose head can belong to any of the three services. These are:

- Strategic Forces Command (controls nuclear and strategic assets).
- Andaman and Nicobar Command.

The Indian Army is one of the largest standing volunteer army's of the world, with 1,129,900 active troops and 960,000 reserve troops (also includes the Territorial Army).

The highest rank in the Indian Army is Field Marshal, which is largely a ceremonial rank, and appointments are made by the President of India on the advice of the Union Cabinet of Ministers, only in exceptional circumstances.

Till date, only two officers have been bestowed with the rank of Field Marshal:

- Field Marshal **Kodandera Madappa Cariappa OBE** (28 January 1899 – 15 May 1993) was the first Indian commander-in-chief (C-in-C) of the Indian Army. He led Indian forces on the Western Front during the Indo-Pakistani War of 1947.
- Field Marshal **Sam Hormusji Framji Jamshedji Manekshaw, MC** (3 April 1914 – 27 June 2008), popularly known as Sam Bahadur, commanded the 3rd Battalion, 5th Gorkha Rifles. He earned his Military Cross (MC) during his gallant actions in World War II.

He was the 8th Chief of Army Staff of the Indian Army in 1969 and under his able command, the Indian forces fought the 1971, Indo-Pak war, to liberate Bangladesh. He was also awarded with the Padma Vibhushan and the Padma Bhushan for his distinguished services to the Indian nation.

Structure of the Army

Each of the above mentioned Commands comprise of 3-5 Corps, which are all also commanded by a Lieutenant General, who is junior in service to their Army Commander:

The Corps may be categorised into two types:

- The **Strike or Offensive Corps** meant to launch an offensive into the enemy territory and comprises of mechanised troops (Armoured formations).
- **Holding / Mountain Corps** to hold the defences and prevent enemy's ingress into own territory.

Each Corps further comprises of 3-5 Divisions and 3-4 Independent Brigades which are commanded by an officer of the rank of Major General and Brigadier, respectively.

The Divisions / Independent Brigades forming part of the Strike Corps have more of mechanised formations and those of Holding Corps have static or less mobile formations.

Presently, the Indian Army has a total of 37 Divisions including; 4 RAPID (Re-organized Army Plains Infantry Divisions), 18 Infantry Divisions, 10 Mountain Divisions, 03 Armoured Divisions and 02 Artillery Divisions.

Each Division has 3-4 Brigades, commanded by a Brigadier and **each Brigade has 3-4 Regiments / Battalions / Units**. Each of the above mentioned formations have their own integral compliment of operational logistic elements.

A Regiment or a Battalion is the smallest fighting unit and is commanded by a Colonel. It has a fighting strength of about 1000 troops, including 50 Junior Commissioned Officers (JCO) and 25-30 Officers.

However, due to shortage of officers in the army and need for employments elsewhere, like posting on extra regimental duties in various Headquarters, attending professional course / leave, etc, a unit normally has less than 10-12 officers present and that is a major challenge, when each officer in effect performs the duties of three officers.

Indian Army, based on operational role, can be mainly categorised into three major elements:

- **The Combat Elements.** These elements physically fight with the enemy on the ground and comprise of Infantry, Armoured Corps, Engineers, etc.
- **The Combat Support Elements.** These elements support the combat elements with firepower and air cover and comprise of Artillery, Army Air Defence, Electronic and Mechanical Engineers, etc.
- **Operation Logistic Elements** (also called the Services). These elements provide logistic support to the combat and the combat support elements and comprise of Army Services Corps, Army Ordnance Corps, etc.

The role of each of these elements during peace time and war, and who all are eligible to join these, is discussed in the succeeding paragraphs:

Combat Elements

The forces, that physically contact the enemy and fight on the ground during an offensive or a defensive battle are the combat elements, and consists of the following:

a) **Mechanised Forces**

The **Armoured Corps**, comprising of Main Battle Tanks, like the T-90, T-72 & MBT Arjun and **Mechanised Infantry**, comprising of BMPs, form the Mechanised forces. These are the first elements that cross the IB in the plains sector to advance and contact the enemy forces.

The role of the Armoured Corps is to cause 'shock & Awe' effect on the enemy and overrun the intended objectives with overwhelming fire power, armour protection and blistering mobility of the Tanks.

The Mechanised Infantry follows the tanks and carries soldiers in the BMPs who dismount on the objective and destroy the enemy overrun by the tanks.

These mechanised forces of today have replaced the erstwhile horse mounted cavalry.

Who can join? All candidates applying through non-technical entries like NDA, CDS, NCC Special Entry, etc.

b) **Infantry**

The infantry provides the 'Boots on the Ground', and fights 'hand to hand' combat with the enemy on the objective and physically holds the ground captured by own forces during an offensive operation.

Infantry forms the largest component and literally the backbone of the Indian Army. It is also engaged in active counter insurgency operations in all insurgency affected areas of our country.

The weapon system held with Infantry comprises of Rifles, Machine Guns, Grenade Launchers, Mortars, Rocket Launchers, shoulder fired and vehicle mounted Missiles.

Who can join? All candidates applying through non-technical entries like NDA, CDS, NCC Special Entry, etc.

c) Corps of Engineers

The Corps of Engineers provide the engineering support in terms of laying mine fields, constructing bridges & defences (bunkers/emplacement for weapon), establishing water points during operations.

Once its engineering tasks are over it is required to hold defences like the Infantry and fight enemy ingress. The Corps of Engineers has a plethora of equipment like Dozers, tractors, earthmovers, and of course all types of mines.

Who all join? Civil Engineers, who have applied through the TGC entry, can opt for it.

d) Army Aviation Corps

The Army Aviation Corps was raised on 01 November 1986. At present, IAF operates & flies attack Helicopters like the Mil Mi-25/Mi-35 which are owned and administered by the Indian Air Force, but under the operational control of the Army Aviation Corps and play a major role to support the armoured columns and infantry.

Apart from the attack role, helicopters like the HAL Chetak, HAL Cheetah, and HAL Dhruv provide logistical support for the Indian Army in remote and inaccessible areas, especially the Siachen Glacier.

To equip Army Aviation Corps, procurement process for 197 light utility helicopters (LUH) is ongoing, of which 64 will be inducted in the Army Aviation to replace the Chetak and Cheetah Helicopters. HAL has obtained a firm order to deliver 114 HAL Light Combat Helicopters to the Indian Army.

Who can join? The army aviation pilots are drawn from serving officers up to the age of 28 years from various arms, to form a composite third dimensional force for an integrated battle. Any officer can opt for it if he meets the criteria.

e) Special Forces (SF)

The Special Forces comprise of units which are under the direct command of the Indian military and specifically organised, trained, and equipped to conduct and support special operations.

The Special Forces have shown their mettle during OP Bluestar (Punjab), OP Pawan (Sri Lanka), OP Cactus (Maldives) and OP Vijay (Kargil).

Presently, there are eight SF units held with the Indian army, who have been doing a commendable job, especially, in the counterinsurgency operations and during other impromptu emergencies faced by the country.

Who can join?

All personnel who are already serving with various arms and services can volunteer for the Special Forces up to age of 28 years.

After obtaining due sanction for 'change of arm/service' from the Army HQ and clearing the very intense probation period, the candidate may be permanently absorbed into the SF.

Combat Support Elements

These are the elements that support the Combat Elements fighting on the ground with fire power, air defence cover, establishing communication and maintenance of their equipment & weapon systems.

The Combat Support Elements comprise of the following:

a) Artillery

The elements fighting on the ground are provided with covering fire and defensive fire support by the Artillery, with its long range guns and Howitzers e.g. Bofors, 130mm guns, Multi-barrel Rocket Launchers, etc which engages enemy with great accuracy from long ranges, up to odd 30 km.

Artillery, along with Air Force degrades enemy defences and neutralises the objectives prior to own mechanised forces and infantry mounts its attack; so that causalities to own troops are minimised.

Who can join? All candidates applying through non-technical entries like NDA, CDS, NCC Special Entry, etc.

b) Air Defence Artillery (ADA)

The ADA is grouped with the fighting echelons during battle and also guards sensitive locations like Headquarters, Communication Centres, etc from enemy air attacks.

It integrates with the Air Force to prevent enemy air interference during battle with its highly sensitive radars and long range gun/ missile systems, like self-propelled guns Tunguska&Shilka and missiles like, Akash, Stinger, etc.

Who can join? All candidates applying through non-technical entries like NDA, CDS, NCC Special Entry, etc.

c) Corps of Signals

The role of the Corps of Signals is to establish an integrated communication and intelligence network system between headquarters and the troops fighting on the ground.

It entails providing reliable wireless and line communication and to ensure its serviceability during peace time and operations.

Who can join? All candidates applying through technical entries, like TES, UES, TGC Entry, and are from Electronics & Communication or Computer Sciences streams.

d) Electronics and Mechanical Engineers (EME)

The EME is responsible for the repair and maintain of the complete fleet of equipment and weapon systems held with the forces and ensure that it remains battle worthy at all times.

During operations they are responsible for recovery of the vehicle casualties and putting them on-road again.

Who can join? All candidates applying through technical entries, like TES, UES, TGC Entry, and are from the Mechanical Engineering stream.

e) Intelligence Corps (INT Corps)

The Intelligence Corps is responsible to act as eyes and ears of the designated commander. The Int Corps is playing a pivotal role to collect and collate raw data and convert it into actionable information based on which counterinsurgency operations are launched.

Who can join? All personnel who are already serving with various arms and services can opt for the Int Corps up to age of 28 years.

After obtaining sanction for 'change of arm/service' from the Army HQ and clearing the probation period, the candidate may be permanently absorbed into the Int Corps.

Corps of Military Police (CMP)

The CMP is primarily responsible for maintaining a high standard of personnel and vehicular discipline and prevent any breach of security. It is also tasked to oversee the correct implementation of the directions of the formation commander on the above mentioned aspects.

During operations, the CMP is responsible to handle prisoners of war and assist in regulation of traffic and maintenance of high security alert at all times.

Who can join? Officers are drawn from various arms and services, trained and posted to manage these very small units.

Judge Advocate General (JAG) Branch

The JAG branch is responsible to provide legal advice to the formation commanders at the level of Corps and above. They also conduct Court Martial's to punish the service personnel who have defaulted on various accounts.

Who can apply? Only law graduates can apply and a direct SSB is held for selection into this stream.

Army Education Corps (AEC)

AEC is responsible to provide educational training and conduct of promotion exams of the troops. The AEC officers are posted at the Brigade HQ level and above. The officer is also responsible for the upkeep of the formation's library.

Who can apply? Only post graduates in designated streams can apply and a direct SSB is held for selection into AEC.

Army Medical Corps (AMC)

AMC is responsible for the issue of advisories on health and hygiene of the formation. Its duties also include conduct of yearly medical examinations of all troops, providing all medical facilities to the serving and retired defence personnel and their dependents.

Army Dental Corps

Army Dental Corps provides dental care to all the personnel and their dependents.

Who can apply? Both for AMC and ADC, only doctors' can apply and the channel of their recruitment is directly controlled by the Director General Medical Services (DGMS).

Operational Logistic (OL) Elements

The Op Logistic Elements are responsible to ensure that the fighting elements are fed, provided with requisite clothing and their equipment and weapons are supplied with adequate spares, fuel, oils and lubricants (FOL).

It is said that 'Army marches on its stomach' and hence, these elements are the cardinal backup for the fighting forces and comprises of the following:

a) Army Services Corps (ASC)

The ASC supplies the rations for the troops and provides FOL to keep the vehicles of the fighting echelons running. ASC also maintain a huge fleet of vehicles that is used to mobilise and transport the fighting forces to the intended battle field.

Who can join? All candidates applying through non-technical entries like NDA, CDS, NCC Special Entry, etc.

b) Army Ordnance Corps (AOC)

The AOC caters for the complete range of clothing items, tentage, spare parts/spares, tools, etc. AOC is also responsible for maintenance and supply of ammunition for training and operations.

Who can join? All candidates applying through non-technical entries like NDA, CDS, NCC Special Entry, etc.

Remount and Veterinary Corps (RVC)

The RVC is responsible for procurement, breeding and training of all animals held with the services, including horses, mules, cows and dogs. They also ensure the prevention and treatment of infectious diseases to the animals held on charge.

Who can apply? Veterinary doctors' with a recognised degree can apply. Only SSB interview if held for selection.

Army Postal Service Corps

Indian Army has its own postal services, which caters for all the postal needs of the defence services.

Territorial Army (TA)

Please read through my comprehensive blog to know: who can apply; how to apply; what is the job content and how are the **service conditions of TA different from the regular army**: <http://www.olivegreens.co.in/blog/is-territorial-army-like-regular-army-and-do-the-officers-become-permanent>

Modernisation Plans of the Army

The Army plans to upgrade the indigenous Arjun tanks and induct Arjun Mark-II variant with: improved night fighting capabilities, enhanced ability to fire anti-tank missile with its 120 mm main gun, advanced air defence, Automatic Target Tracking (ATT), which will improve accuracy of firing on moving targets and superior Laser Warning and Control systems (LWCS).

Also, Army aims to upgrade the BMP-II held with mechanised infantry, to include: integration of latest generation fire control system, twin missile launchers, anti- tank guided missiles, as well as automatic grenade launchers.

The procurement of 3000 to 4000 pieces of artillery at the cost of US\$3 billion is underway. The major artillery equipment projected to be procured include: 1580 towed, 814 mounted, 180 self-propelled wheeled, 100 self-propelled tracked and 145 ultra-light 155 mm/52 calibre artillery guns, including M777 155mm howitzers from USA.

Presently, three regiments of the existing 40th and 41st Artillery Divisions of the Indian Army hold the BrahMos missiles @72 missiles per regiment. BrahMos is the world's fastest cruise missile.

India Army is procuring Spike Anti Tank Guided Missile System with 8,356 missiles and 321 launchers from the Israeli firm Rafael Advanced Defence Systems for Rs 32000 cr. It is a third generation, man portable, fire and forgets anti tank missile with a range of 4000 meters.

Indian Army has also embarked on an infantry modernisation programme known as Futuristic

Infantry Soldier As a System (F-INSAS). The infantry soldiers will be equipped with modular weapon systems that will have multi-functions.

Lastly, a Battlefield Management System (BMS) is being developed to integrate combat units, like armoured, mechanised infantry, artillery, infantry battalions, helicopter flights, etc, into a digital network that will link together all components of the future battlefield.

Missile Shield: India has signed a deal for five S-400 Triumph Air Defence Systems to plug the operational gaps in the India's air defence and the equipment will be delivered by 2020.

S-400 AD system is capable of destroying hostile aircrafts, stealth fighters, long range ballistic missiles and drones at a ranges between 120-400km.

The weapon platform is equipped to fire three types of supersonic and hypersonic missiles to intercept different targets and has a long-range all weather radar that can track hundreds of targets simultaneously.

It is envisaged that three of these air defence shields will be deployed on the western sector against air threat from Pakistan and two on the eastern sector against China.

China has already procured the air defence system S-400 from Russia in 2017.

Indian Air Force

Air Power will be a decisive factor in shaping the outcome of future conflicts and the Indian Air Force plays a crucial role in securing Indian airspace and also in India's power projection in South Asia and Indian Ocean.

The IAF has a total strength of 127,000 active personnel.

Chief of the Air Staff with the rank of Air Chief Marshal is the Commander of the Indian Air Force.

In January 2002, the government conferred the rank of **Marshal of the Air Force** on Arjan Singh making him the first and only officer with the Indian Air Force to have been conferred with this rank of ceremonial chief of the air force, equivalent to a Field Marshal.

Structure of the Indian Air Force

The Indian Air Force has seven commands, of which five are operational and two functional, namely:

- HQ Central Air Command, Allahabad
- HQ Eastern Air Command, Shillong
- HQ Western Air Command, New Delhi
- HQ Southern Air Command, Thiruvananthapuram
- HQ South-Western Air Command, Gandhi Nagar
- HQ Maintenance Command, Nagpur and
- HQ Training Command, Bangalore

Each **Command** is headed by an **Air Officer Commanding-in-Chief** with the rank of **Air Marshal** (equivalent to army Lieutenant General).

The purpose of an operational command is to conduct military operations using aircraft within its area of responsibility, whereas the responsibility of functional commands is to maintain combat readiness.

Within each **operational command** is a number of **air groups**, each is headed by an **Air Officer Commanding-(AOC)** with the rank of **Air Vice-Marshal** (equivalent to army Major General)).

Each **air group** further consists of **several bases or stations**, headed by an **Air Commodore** (equivalent to army Brigadier) or Group Captain (equivalent to army Colonel).

A **Wing** (equivalent to an army Unit) generally consists of **two or three IAF Squadrons and Helicopter Units**, along with **Forward Base Support Units (FBSU)**.

In all, about 47 Wings and 19 FBSUs make up the IAF. A Wing is commanded by a **Group Captain**.

A **Flying Squadron** is a sub-unit of an air force station which carries out the primary task of the IAF.

All fighter squadrons are headed by an officer with the rank of **Wing Commander**. Some Transport squadrons and Helicopter Units are headed by a Commanding Officer with the rank of **Group Captain** also.

A **Flight** is a sub-division of the Squadron and is commanded by a **Squadron Leader**.

Within the above mentioned formation structure, IAF has several service branches for day-to-day operations. These are:

Flying Branch: Responsible to fly fighter/ transport aircrafts and helicopters for operational and peace time missions.

Technical Branch: Responsible for the maintenance and upkeep the aircraft and other ancillary equipment.

Ground Branch: Responsible for providing the requisite administrative and logistic backup to the other two Branches.

Besides, providing the meteorological data, this branch also looks after the pay & allowances, education and medical requirements of the IAF.

Operational Capability of IAF

The IAF has a large and diverse fleet of fighter aircrafts, transport aircrafts, helicopters and trainer aircrafts. The details of the same are given below:

Fighter Aircrafts

Suhkoi SU-30 MKI: Twin seater twin engine multirole fighter of Russian origin which carries One X 30mm GSH gun along with 8000 kg external armament.

It is capable of carrying a variety of medium-range guided air to air missiles with active or semi-active radar or Infra red homing close range missiles. It has a max speed of 2500 km/hr (Mach 2.35).

It is the IAF's primary air superiority fighter with the additional capability to conduct air-ground (strike) missions. A total of 242 SU-30 are held in service. Further, 272 SU-30 are being acquired, with a possible order of 40 more.

All Suhkoi aircrafts will be upgraded to 'Super Sukhoi' standards and inducted by 2020.

In order to give the IAF fighters an edge in anti-ship and land attack roles, smaller version of BrahMos missile has developed and integrated with Sukhoi Su-30MKI. BrahMos-A, with a range of 290km and a speed of Mach 3 was successfully test fired on 22 November 2017.

Tejas Light Combat Aircrafts (LCA): The HAL Tejas is an indigenously developed, single-seat, single-jet engine, multi-role light fighter designed

by the Aeronautical Development Agency (ADA) and Hindustan Aeronautics Limited (HAL) for the Indian Air Force and Navy. It will replace the aging fleet of MiG-21 and MiG-27 aircrafts held with the AF.

Tejas was originally intended to serve as an air superiority aircraft with a secondary ground-attack role, its flexibility permits a variety of guided air-to-surface and anti-shipping weapons to be integrated for multirole and multi-mission capabilities.

Rafael's 'Derby' fire-and-forget missile will serve as the Tejas initial medium range air-air armament. The Brahmos NG supersonic cruise missile is being developed for the Tejas. The long range Nirbhay cruise missile is also being considered for use on the Tejas.

Tejas took its maiden flight in January 2001, and by December 2013, it had completed 2,587 sorties covering over 1,750 hours.

In July 2014, the Final Operational Clearance (FOC) was pushed back as six or more aircraft were needed for testing and only one had been produced by then.

Tejas received IOC-II clearance on 17 January 2015 and the FOC was expected by that year's end for induction in the Indian Air Force, but due to technical reasons, the same has been pushed down to end of 2016.

On 26 February 2016, Defence Minister Manohar Parrikar had said in the Lok Sabha that the Indian Air Force will accept three to four Tejas this year and stand up a total of eight squadrons in eight years, i.e. around 160 Tejas Light Combat Aircrafts (LCA) by 2024.

MiG-29 (Baaz): Twin engine, single seater air superiority fighter aircraft of Russian origin, capable of attaining max speed of 2445 km per hour (Mach-2.3).

It carries a 30 mm cannon along with four R-60 close combat and two R-27 R medium range radar guided missiles.

It is a dedicated air superiority fighter and constitutes a second line of defence after the Sukhoi Su-30MKI.

At present, 69 MiG-29s are in service, all of which are being upgraded to the MiG-29UPG standard. The first six were upgraded in Russia and the remaining aircraft will be upgraded by HAL. This aircraft will remain in service till 2030.

Mirage-2000 (Vajra): A single seater air defence and multi-role fighter of French origin, powered by a single engine can attain max speed of 2495 km/hr (Mach 2.3).

It carries two 30 mm integral cannons and two matra super 530D medium-range and two R-550 magic II close combat missiles on external stations.

It is the primary multirole fighter in service and the IAF operates 50 Mirage 2000H, all of which are being upgraded to the Mirage 2000-5 MK2 standards. The aircraft will remain in service till 2030.

MiG-27: Single engine, single seater tactical strike fighter aircraft of Russian origin, having a max speed of 1700 km/hr (Mach 1.6).

It carries one 23 mm six-barrel rotary integral cannon and can carry up to 4000 kg of other armament externally.

A total of 120 MiG 27s are held with IAF. All non-upgraded aircraft will be retired in 2016; remaining aircraft to be retired by 2017-18. It is to be replaced by HAL Tejas.

MiG-21 BISON: Single engine, single seater multirole fighter/ground attack aircraft of Russian origin, which had formed the back-bone of the IAF during yesteryears.

It has a max speed of 2230 km/hr (Mach 2.1) and carries one 23mm twin barrel cannon with four R-60 close combat missiles.

A total of 245 MiG 21 aircrafts are held with the IAF, MiG-21MF ("Type 88") and one squadron of upgraded MiG-21 Bisons to be retired in 2017. The remaining 132 aircraft will be retired by 2022 and replaced by the HAL Tejas.

Jaguar: A twin-engine, single seater deep penetration strike aircraft of Anglo-French origin which has a max speed of 1350 km /hr (Mach 1.3). Jaguars were also operated in a naval strike role.

It has two 30mm guns and can carry two R-350 Magic CCMs (over wing) along with 4750 kg of external stores (bombs/fuel).

A total of 145 Jaguars are held with the IAF. Its Service-life upgrades will be completed by 2020. The aircraft will be retired by 2030.

Strategic Transport Aircrafts

C-17 Globemaster III: The aircraft is capable of carrying a payload of 40-70 tons up to a distance of 4200-9000 km in a single hop.

Ten C-17 are held with the IAF and ten more have been ordered from its manufacturer, Boeing.

IL-76 (Gajraj): A four engine heavy duty/long haul military transport aircraft of Russian origin with a max speed of 850 km/hr.

It has a twin 23 mm cannon in tail turret and capacity to carry 225 paratroopers or 40 tonnes freight, wheeled or tracked armoured vehicles.

A total of 17 IL-76 are held with the IAF. The C-17 Globemaster III will replace the aging fleet of IL-76.

Tactical Transport Aircrafts

C-130J Super Hercules: The aircraft is capable of performing para-drop, heavy drop, causality evacuation, and can also operate from short and semi prepared surfaces.

There are five C-130Js in service. Seven more have been ordered, inclusive of one additional aircraft ordered in August 2014 to replace the loss of a crashed C-130J and six more are planned to be procured.

AN-32 (Satluz): Twin engine turboprop, medium tactical transport aircraft of Russian origin with a crew of five and capacity to carry 39 paratroopers or max load of 6.7 tonnes. It has a max cruise speed of 530 km/hr.

A total of 100 AN-32 aircrafts are held with the IAF. All are in the process of being upgraded to An-32RE standard by this year end. (60 being upgraded locally and 40 upgraded in Ukraine). This will be eventually replaced by UAC/HAL IL-214.

Hawker Siddeley HS 748: The Hawker Siddeley HS 748 is a medium-sized turboprop airliner originally

designed by the British firm Avro in the late 1950s. In India it is also popularly called Avro.

There are a total of 59 Avro aircrafts held with the IAF. It is planned to be replaced with 56 EADS CASA C-295 aircraft in the near future.

Utility Transport Aircraft

Dornier: Twin engine turboprop, logistic air support staff transport aircraft of German origin capable of carrying 19 passengers or 2057 kg freight. It has a max speed of 428 km/hr.

A total of 40 Dornier aircrafts are held with the IAF and 14 more have been ordered since 2015.

VIP Transport Aircraft

EMBRAER: The main role of employment of this executive Jet Air craft is to convey VVIPs/VIPs to destinations within India and abroad.

Air HQ Communication Squadron operates this aircrafts and it has maintained a flawless incident/accident free track record till date.

There are a total of eight EMBRAER aircrafts held with the IAF.

Boeing 737-200: Twin engine turbofan, VIP passenger aircraft of American origin with total seating capacity of up to 60 passengers. It has a max cruise speed of 943 km/hr.

A total of three Boeing 737-200 aircrafts are held with the IAF.

Trainer Aircrafts

HAL HJT-16 Kiran: The IAF uses the HAL HJT-16 Kiran Mk-I for intermediate flight training of cadets, while the HJT-16 Kiran Mk-II provides advanced flight and weapons training.

The HAL HJT-16 Kiran Mk-II is also operated by the Surya Kiran Aerobatic Team (SKAT) of the IAF.

A total of 81 aircrafts are held with the IAF, which will be phased out by 2017 and eventually be replaced by BAE Hawk.

BAE Hawk: The BAE Hawk is a British single-engine, jet-powered advanced trainer aircraft.

A total of 90 BAE Hawk trainers have been ordered by the IAF of which 39 have entered service as of July 2010. Another 15 aircrafts will be delivered by the end of 2016.

Pilatus PC-7 Turbo Trainer: The Pilatus PC-7 Turbo Trainer is a low-wing tandem-seat training aircraft, manufactured by Pilatus Aircraft of Switzerland.

The aircraft is capable of all basic training functions including aerobatics, instrument, tactical and night flying.

A total of 75 aircrafts are held with the IAF and 106 more have been ordered.

PipistrelVirus: The Pipistrel Virus is a light aircraft manufactured in Slovenia and sold as an ultra-light, sport aircraft globally.

Two of these trainer aircrafts have been recently procured and 72 more have been ordered.

Attack Helicopter

MI-25/MI-35: Twin engine turbo shaft, assault and anti armour helicopter capable of carrying 8 men assault squad with four barrel 12.7 mm rotary gun in nose barbette and up to 1500 Kg of external ordnance including Scorpion anti-tank missiles. It has a max cruise speed of 310 km/hr.

Presently, 20 are held in service. Four of these have been donated to Afghanistan Armed Forces recently. It is planned to be eventually replaced by American Boeing AH-64D Apache of which up to 70 maybe ordered (including Army and Air Force orders).

HAL Rudra: The HAL Rudra, also known as ALH-WSI, is an armed version of HAL Dhruv. Rudra is equipped with Forward Looking Infrared (FLIR) and Thermal Imaging Sights Interface, a 20 mm turret gun, 70 mm rocket pods, anti-tank guided missiles and air-to-air missiles.

In September 2012, ground tests for the first production Rudra were completed and the helicopter is in service since 2013.

A total of seven Rudra Helicopters are held with the IAF and 38 more have been ordered.

HAL Light Combat Helicopter (LCH): The HAL Light Combat Helicopter (LCH) is a multirole combat helicopter being developed in India by Hindustan Aeronautics Limited (HAL) for use by the IAF and the army.

This LCH is again a derivative of the HAL Dhruv, which has already been inducted into the Indian Armed Forces.

At present only three prototype helicopters have been delivered to the IAF, who have placed an order for 65 more helicopters.

Heli-lift/ Utility Helicopters

Dhruv: The HAL Dhruv serves primarily as a light utility helicopter in the IAF. In addition to transport and utility roles, as mentioned above, newer Dhruvs are also being used as attack helicopters.

Presently, 66 are held in service and 65 more have been ordered.

Chetak: Single engine turbo shaft, light utility French helicopter with capacity of 6 passengers or 500 kg load. It has a max speed of 220 km/hr.

Presently, 74 Chetaks are held in service. The HAL Chetak is being gradually replaced by HAL Dhruv.

Cheetah: Single engine turbo shaft, Forward Air Controller/casualty evacuation helicopter in high altitude of French origin having capacity to carry 3 passengers or 100 kg external sling loads. It has max cruise speed of 121 km/hr and can climb to 1 km in 4 minutes.

Presently, 14 Cheetah helicopters are held in service.

Transport Helicopters

MI-26: Twin engine turbo shaft, military heavy lift helicopter of Russian origin with carrying capacity of 70 combat equipped troops or 20,000 kg payload. It has a max speed of 295 km/hr.

Presently, only three are held in service. This helicopter will be complemented by the American Boeing CH-47 Chinook 15 of which have been ordered.

MI-17 V5: The Mi-17 V5 is a potent helicopter platform, equipped with modern avionics and glass cockpit instrumentation.

MI-17 V5 is equipped with state-of-art navigational equipment, avionics and weather radar.

Presently, 400 helicopters are held in service (including MI-8s). The IAF has ordered 48 more Mi-17V-5s to replace and augment its existing fleet of Mi-8s and Mi-17s.

Missile Systems:

Akash Missile System: The indigenously developed Akash missile is a medium range surface-to-air missile. It has a 27-km range and an effective ceiling of 15 km.

It was successfully test fired from the Integrated Test Range in Balasore on 19 June 2014.

The 700-kg all-weather Akash missile can carry a 60-kg warhead at speeds of up to Mach 2.5. It can operate autonomously and simultaneously engage and neutralise different aerial targets.

Astra Missile: India's indigenously developed Beyond Visual Range (BVR) air-to-air missile, Astra, was successfully launched from a Sukhoi-30 fighter aircraft on 19 March 2015. It was the fifth air launch; the first one was conducted on 24 May 2014.

It is an all-weather, state-of-the-art missile developed by Defence Research and Development Organization (DRDO) can engage and destroy enemy aircraft at supersonic speed.

ASTRA missile is 3.8 metre long and will carry a 15kg high-explosive fragmentation warhead. It is designed to intercept targets beyond visual range, head-on at a range of 80km, or at 20 km range in tail-chase mode.

It can reach up to 110 km when fired from an altitude of 15 km, 44 km when launched from an altitude of eight km and 21 km when fired from sea level.

Air Force will have this missile as its future mainstay missile system and DRDO is aiming to arm the complete fleet of Aircrafts with this missile, including Sukhoi's and Tejas, Light Combat Aircraft, which is still under development.

Prithvi-II. The IAF currently operates the Prithvi-II short-range ballistic missile (SRBM). It has a range of 350 km with a 350 to 750 kg payload of Nuclear, HE, sub munitions and chemical warhead.

BhraMos-A: The BrahMos is a medium-range ramjet supersonic cruise missile. It is the world's fastest anti-ship cruise missile in operation. The missile travels at speeds of Mach 2.8 to 3 with a range of 290 km.

BrahMos-A is a modified air-launched variant of the missile which has a range of 290km that can be launched from a Su-30MKI as a standoff weapon (can be launched without even entering enemy's air space).

Force Multipliers of Air Force

Garud Commando Force: In September 2009, the IAF established its own special operation unit called the Garud Commando Force, consisting of approximately 1500 personnel.

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.

Unmanned Ariel Vehicle (UAV) & Drones: The IAF currently uses the IAI Searcher II (100 plus are held) and IAI Heron (50 plus are held) for reconnaissance and surveillance purposes.

The IAI Harpy (05 held) and IAI Harop (10 held) are in serves as an Unmanned Combat Aerial Vehicle (UCAV) which is designed to attack radar systems.

The IAF also operates the DRDO Nishant (UAV) and DRDO Lakshya which serves as realistic towed aerial sub-targets for live fire training.

At present a total of 39 small target drones are in service with the Indian Air Force and Indian Navy.

Airborne Early Warning and Control System: The IAF operates the Israeli EL/W-2090 Phalcon AEW&C. A total of three such systems are in service and two more are being ordered.

The IAF is also currently training the crew in operating the indigenously developed DRDO AEW&CS flying on the Embraer ERJ 145 aircraft. A total of two are held with the IAF.

Air Refuelling: The IAF refers to the aircraft as MARS (Mid-air refuelling system). Currently seven Illyushin Il-78MKIs in the aerial refuelling (tanker) role are held with the IAF.

Network Centric Warfare: The Indian Air Force (IAF) got a boost towards becoming a truly

network centric air force with launching Air Force Network (AFNET), a reliable and robust digital information grid that enables accurate and faster response to enemy threats, in 2010.

The modern, state-of-the-art AFNET is a fully secure communication network, providing IAF critical link among its command and control centre, sensors such as the Airborne Early Warning and Control Systems and shooters like the fighter aircraft and missile squadrons.

Integrated Air Command and Control System (IACCS), an automated command and control system for Air Defence (AD) operations will ride the AFNet backbone integrating all ground-based and airborne sensors, AD weapon systems and C2 nodes.

The primary motive of network centric warfare is to reduce the sensor - to - shooter time for prompt and accurate engagement of targets in near real time.

Modernisation Plans of IAF

Up gradation of MiG 29 with air-to-air missiles, and the upgraded MiGs will feature with increased fuel capacity and will include latest avionics. All aircrafts are being upgraded to multi role MiG-29UPG standards.

50 Su-30MKI are being planned to be upgraded with the capability of carrying the BrahMos-A cruise missile. In addition, there are also plans to integrate the nuclear-capable Nirbhay missile with the aircraft as well.

Mirage 2000H is also being upgraded to the next generation fighter level. Mirage 2000-5 Mk 2 variant has a new radar systems, a new weapon suite, missiles, electronic warfare system, etc.

Light Combat Aircraft (LCA) Tejas, which has been indigenously manufactured by HAL, has been officially inducted into IAF after achieving the Final Operational Clearance (FOC). Up-gradation of the same with state of art weaponry and communication system is underway.

Eventually, a total of 294 Mk I and Mk II Tejas aircraft will be ordered to equip 14 squadrons replacing the MiG-21 and MiG-27. First lot of nine Tejas have already been received.

The Government of India has finalised the purchase of 36 Rafale medium multi-role combat aircrafts (MMRCA) in fly-away condition from France for the Indian Air Force (IAF) at the cost of \$9 billion. The deliveries of the fighter are likely to begin in 2019.

The new MMRCA aircraft is a twin-engine, fourth generation multirole fighter aircraft and will feature an advanced electronically scanned array radar, mid-air refuelling and advanced electronic warfare equipment.

Powered by two SNECMA M88 engines, Rafale has been designed to conduct air-to-air combat, reconnaissance flights and nuclear bombing missions. The aircraft can be fitted with anti-ship and air-to-air and air-to-ground missiles.

The IAF's Rafales will come equipped with the Meteor missile, designed to knock out enemy aircraft and cruise missiles significantly more than 100 km away. The acquisition of this weapon is likely to be a game changer in South Asia. Neither Pakistan nor China, India's traditional military adversaries, possesses a weapon of the same class.

India has also ordered 22 Apache Attack Helicopters from the American AH-64D Apache.

Indigenously developed HAL Light Observation Helicopters and HAL Light Combat Helicopters / Rudra are also expected to join the air force / army to replace the ageing Chetak and Cheetah helicopters, respectively for use by IAF during combat operations.

Light Utility Helicopter: A deal for procurement of 200 Kamov-226T helicopters at a cost of \$1 billion was signed between India and Russia on 15 October 2016.

It has been decided that first 60 choppers will be procured from Russia and the balance will be produced in India over the next nine years, giving a fillip to the 'make in India' campaign.

The Kamov-226T is a small twin-engine, multirole helicopter, which can perform the tasks of reconnaissance, aerial patrolling and disaster relief operations. It can carry on board, eight combat ready soldiers and has an operational range of 600km.

In all the armed forces needs 484 light helicopters to replace the ageing fleet of Cheetah and Chetak helicopters which are presently held with India. HAL is also in the process of manufacturing 187 light helicopters.

Indian Navy

The primary role of the Indian Navy is to act in conjunction with the other Armed Forces to deter or defeat any threats or aggression against the territory, people or maritime interests of India, both in war and peace.

The basic structure of the Indian Navy comprises of three naval commands, each of which is headed by an officer of the rank of Vice-Admiral and the Chief of Naval Staff (CNS), is of the rank of an Admiral:

- Eastern Command, located at Visakhapatnam.
- Western Command, located at Mumbai.
- Southern Command, located at Kochi.

The **Andaman and Nicobar Command** is a unified tri-service Command of Indian Navy, Indian Army, Indian Air Force and Coast Guard Command. It was set up in the Andaman and Nicobar Islands in 2001.

The strength of the personnel held with the India Navy is 58,350 men and women, including 7,000 personnel of Indian Naval Air Arm and 2000 Marine Commandos (MARCOS).

Operational Capability of The Indian Navy

Two aircraft carriers: Indian Naval Ship (INS) Viraat, formerly from British Navy and INS Vikramaditya, formerly called Admiral Gorshkov from Russian Navy.

Aircraft Carrier, INS Vikrant, Sea trials have commenced in 2016 and it is planned to join the Eastern Naval Command by 2018. INS Viraat will be decommissioned after the induction of the indigenously built INS Vikrant into service.

Futuristically, Indian Navy is planning to indigenously build another Aircraft Carrier, INS Vishal, which will be a Nuclear Powered Supercarrier with hi-tech systems onboard to launch and recover aircrafts. It is however, still at the planning stage.

Ten Guided Missile Destroyers: The navy currently operates two Kolkata class (INS Kolkata and INS Kochi), three Delhi class (INS Delhi, INS Mysore and INS Mumbai) and five Rajput class (INS Rajput, INS Rana, INS Ranjit, INS Ranvir and INS Ranvijay) guided-missile destroyers.

INS Kochi, the stealth guided missile destroyers, was commissioned into service in September 2015. It was constructed by Mazagon Dock Ship builders Ltd in Mumbai, and is the second ship of the Kolkata-class (Project 15A) Guided Missile Destroyers.

INS Kochi is packed with an array of state-of-the-art weapons and sensors, with a significant indigenous component.

The contract for three more ships of Kolkata class has also been signed. INS Chennai (D65) is the third ship of the Kolkata-class destroyers being built at Mazagon Dock Limited in Mumbai. INS Chennai will be inducted into service by the end of 2016.

The ships of the Rajput class will be replaced in the near future by the next-generation Kolkata-class destroyers (Project 15B) which will feature a number of improvements. Visakhapatnam class guided missile destroyer, christened Mormugao, was commissioned under Project 15B on 17 September 2016.

The principal armament of the Visakhapatnam-class will be eight BrahMos supersonic cruise missiles, which boast an operating range of 290 km and will also be equipped with 32, Barak-8/NG surface-to-air missile (SAM), which has been jointly developed by Rafael-IAI of Israel and the DRDO.

The ship will be armed with a 127 mm main gun, a Multi-Function Surveillance Threat Alert Radar (the Israeli equivalent to the U.S. Navy's Aegis Combat System), twin-tube launchers and RBU-6000 Smerch-2 rocket launchers) for antisubmarine warfare and can also carry two multiple-role helicopters (e.g., Sea King or HAL Dhruv helicopters).

The total cost of the program is estimated at around \$4.9 billion.

Fourteen Stealth Guided Missile Frigates: The Stealth Guided Missile Frigates includes Shivalik

class (Project 16 class), with three vessels, Talwar class with six vessels, Brahmaputra class with three vessels and Godavari class with two vessels.

The Shivalik class (Project 16 class) will be succeeded by Project class 17A, in which a total of seven ships will be built at Mazagon Dock. The construction of the first ship is expected to start by early 2017 and is expected to be launched by 2020.

The up-gradations in Project 17A will include, compact weapon platform and they will be armed with the Barak 8 (missile) surface-to-air missile developed jointly by India and Israel, and the BrahMos supersonic cruise missile.

The Talwar class first three vessels will be similarly upgraded and additional four vessels will be built in a joint partnership between Russia and an Indian shipyard.

The older Brahmaputra class and Godavari class frigates will systematically be replaced one by one as the new classes of frigates are brought into service over the next decade.

The lead vessel in the Godavari class was decommissioned on 23 December 2015 after a 32-year career and the remaining two vessels in class scheduled to be decommissioned in the near future.

Amphibious Warfare ships

One Amphibious Ship: INS Jalashwa was procured by India from US for a total of US\$90 million in 2005 and was commissioned on 22 June 2007.

The sizeable deck of Jalashwa can house up to four LCM-8 mechanised landing crafts or can be used for helicopter operations from which up to six medium helicopters can operate simultaneously.

The deck can also be used to operate vertical take-off and landing (VTOL) aircraft like the Sea Harrier, in special circumstances. She is also capable of embarking over 1,000 troops, and is fully equipped with extensive medical facilities including four operation theatres, a 12-bed ward, laboratory and a dental centre.

As per the terms of sale, Jalashwa cannot be used during a war or offensive operation, unless such action is granted by the United States Pentagon.

Indian Navy plans to induct four modern amphibious ships in the near future for which tender action is in process.

Nine Landing Ships: Landing ships are meant to support amphibious operations by carrying vehicles, cargo, and landing troops directly onto an unimproved shore.

Presently, Indian Navy has Shardul class with two vessels, Magar class with three vessels and Kumbhir class with four vessels.

Ten Landing Crafts: The Landing Craft Utility (LCU) is a type of boat used by amphibious forces to transport equipment and troops to the shore.

The LCU is capable of transporting tracked or wheeled vehicles and troops from amphibious assault ships to beachheads or piers.

Presently, Indian navy holds six vessels of Mk III Landing Craft Utility, and four vessels of Mk IV Landing Craft Utility.

Twenty Four Corvettes: These are smaller littoral zone combatants in service in the form of corvettes, of which, the Indian Navy operates the Kamorta class with two vessels, Kora class with four vessels, Khukri class with four vessels, Veer class with ten vessels and Abhay classes with four vessels.

The next-generation Kamorta class of corvettes are being developed and will progressively replace the older versions. The first one was inducted into the Navy in August 2014. In this class, INS Kiltan and INS Kavaratti will be shortly commissioned and are being primarily designed for antisubmarine warfare.

The lead ship of Veer class, INS Veer and INS Nipat were decommissioned in April 2016, leaving a balance of ten in this class.

Thirteen Conventionally Powered Attack Submarines: Sindhughosh class (Russian Kilo-class design) with nine submarines and Shishumar class (German Type 209/1500 design) with four submarines are held.

The Shishumar class is being planned to be armed with Harpoon Block-II anti-ship missiles in due course.

These 13 conventional diesel-electric submarines held with India are 30 years old and only half of them are operational due to its vintage and refits. The government has planned to get 30 subs before 2022 to match China's under sea prowess.

In 2005, India chose the Scorpène design; purchasing six submarines for US\$3 billion (\$500 million per boat) under Project 75 (P75).

The submarines are being manufactured under a technology transfer agreement by the Mazagon Docks in Mumbai from French firm DCNS and the construction of the first submarine started on 23 May 2009. The project is expected to cost Rs 23,000 crore.

The first Scorpene submarine was launched into water on 06 April 2015 and brought to the Naval Dockyard on 28 October 2015. This diesel-electric powered Scorpene submarine, called INS Kalvari has been inducted into the Indian Navy fleet in September 2016.

Numerous defence activities can be carried out through this stealth submarine including mine laying, area surveillance, anti-submarine warfare, intelligence gathering and multifarious warfare activities.

The submarine, INS Kalvari is equipped with 6 x 533-mm torpedo tubes, SM.39 Exocet Anti-ship missiles and 30 mines in place of torpedoes, as the Indian Navy's \$300 million purchase of 98 torpedoes from WASS, which belongs to Finmeccanica Company remains suspended, as a result of a ban on Finmeccanica due to the irregularities discerned in the Agusta Westland deal.

One Scorpene submarine will be delivered every nine months and the complete fleet of six submarines will be inducted into the Navy by 2018.

One Nuclear Powered Attack Submarine: A nuclear-powered attack submarine INS Chakra is held on a ten years lease from Russia in 2012. Negotiations are underway to lease an additional Akula-class attack submarine.

India's first indigenously built nuclear submarine, INS Arihant, possesses capabilities to be equipped with short range missiles as also the K4 long range ballistic missile.

It completed its sea trials and weapon launch tests in April 2016 and has been inducted into the India Navy since May 2016.

Arihant is the lead ship of the five nuclear powered ballistic missile submarines launched in 2009. The induction of INS Arihant, makes India to join one of the few super powers in the world that possess the knowledge of designing, engineering and operating a nuclear submarine.

Miscellaneous Equipment: Besides the above mentioned major equipment, the India Navy holds, six Pondicherry class Mine Countermeasure vessels (mine sweeper vessel called INS Bhatkal), 27 patrol vessels, 4 fleet tankers and various auxiliary vessels and support ships.

Besides the above mentioned navy ships, the Indian Coast Guard operates around 90 - 100 armed patrol ships of various sizes.

Force Multipliers of Indian Navy

Indian Naval Air Arm

The Indian Navy air arm consists of aircrafts like, the MiG-29Ks and the Sea Harrier jets that operate from the aircraft carrier INS Viraat.

The Kamov-31 provides the Airborne Early Warning cover for the fleet. In the anti-submarine role the Sea King, Ka-28 and the domestic built HAL Dhruv are used.

Indian Navy has also purchased more MiG-29Ks to operate from the aircraft carrier, INS Vikramaditya.

The Naval air arm also has around 30 UAVs like Heron and Searcher-IIs that are operated from ships and shore for better surveillance.

MARCOS

The Marine Commando Force (MCF), also known as MARCOS, is a Special Forces unit that was raised by the Indian Navy in 1987.

The MARCOS, are envisaged to be employed for direct action, special reconnaissance, amphibious warfare and counter-terrorism.

Personnel are drawn from the regular navy as volunteers for training and induction into the commando force.

Important Missile Systems held with Navy

Dhanush: The naval operational variant of Prithvi I and Prithvi II class missiles are code named Dhanush (meaning Bow) and are meant for surface targets.

BraMos Cruise Missile: In 1998, the Government of India signed an agreement with Russia to design, develop, manufacture and market a Supersonic Cruise Missile System which has been successfully accomplished in 2006.

It is a super-sonic cruise missile that can be launched from submarines, ships, aircraft or land. At speeds of Mach 2.5 to 2.8, it is the world's fastest cruise missile with a range of 290 km and is about three and a half times faster than the American subsonic Harpoon cruise missile.

The missile was successfully test fired on 09 June 2014. At present, Brahmos has been inducted into eight warships of the Indian Navy.

Sagarika Missile/K-15: This is a nuclear capable submarine launched ballistic missile with a range of 700 km to provide retaliatory nuclear strike capability to India. The missile is being tested for integration with INS Arihant.

K4 Missile. India successfully test fired the nuclear-capable ballistic missile launched from an underwater platform, with a range of 2000km in February 2014.

With this India completed the nuclear triad available with only a few nations of having the capability of launching surface, air and underground nuclear-capable ballistic missiles.

Nirbhaya Missile: This will be India's first all weather, low cost, long range cruise missile. The subsonic Nirbhay is said to be 6 m in length with a 520 mm diameter, weigh 1,000 kg and have a 1,000 km range with a speed of 0.7 mach.

This missile was test fired for the first time in March 2013 and is in the final stages of development.

Modernisation Plan

INS Vikrant is an Aircraft carrier constructed by the Cochin Shipyard Ltd (CSL) at Kerala for the

Indian Navy. It is the first aircraft carrier built in India. It has been included into Indian Navy on 02 Sep 2022. It has 14 decks range of 15000 Kms speed, 56 KM/hour. It carries 30 aircrafts fixed wing Mig 29 K, rotary-wing, Kamov Ka-31, HAL Dhruv upto 26 mig-29 K fighter jets alongwith 4 utility helicopters or 3 HAL Dhruv NUH Kamov Ka -31 helicopters mil fly from INS Vikrant. It is 860 feet long, top speed of 52 Km/h and endurance of 139000 Kms. The ship has 2300 compartments, manned by 1700 sailors. It has a hospital complex.

The Navy is acquiring the Kolkata-class destroyer, the Kamorta-class corvette and the Project 17A-class frigate.

The navy also plans to procure eight mine countermeasure vessels (MCMVs) of the Future Indian minehunter class, to replace the Pondicherry class ocean minesweepers in service.

The Indian Navy has signed a deal with Boeing to supply twelve P-8 Poseidon Anti-submarine Warfare/Maritime Surveillance Aircraft.

The first aircraft was delivered on 21 December 2012. Boeing handed over another two on November 2013 and the remaining five this year.

Multi-role naval helicopters are being procured, which will be equipped with anti-ship and anti-submarine warfare equipment including missiles and torpedoes, and also be capable of being in-flight refuelling. The type will operate from both naval vessels and land bases.

In 2014 the Defence Acquisition Council announced a \$13 Billion programme that would include six domestically produced stealth submarines.

Clearance has also been accorded for two Midget Submarines, or "Chariots" for marine commandos to undertake special operations at the cost of Rs 2,017 cr.

An order has been placed on Hindustan Aeronautical Limited (HAL) for the manufacture of 12 Dornier aircrafts to enhance the capability of Navy for aerial observation and guarding of the maritime borders.

Guided Missile Stealth Frigates: India has inked a deal for four Grigorovich-class frigates from Russia

at a cost of \$4 billion on 15 October 2016. Two of these will be built in India.

These stealth frigates are 4000 ton, multi-role frigates, with an operating range of 4500 nautical miles and fitted with hi-tech sensors and state of art weapons, including the supersonic BrahMos missile.

However, the above deal has been linked to India's plan to lease a second nuclear powered Russian submarine at a cost of \$1.5 billion. The first nuclear submarine, INS Chakra was leased by India from Russia in 2012.

India has already inducted six Russian stealth frigates into the Navy, i.e. three Talwar-class and three Teg-class. The Grigorovich-class frigate will be an upgraded version of the Teg-class.

Indian Navy at present has 130 warships, out of which many are old and at the verge of down gradation.

In order to be able to appropriately project its maritime power and effectively protect its interests, India Navy plans to induct 212 warships by 2017.

A total of 39 warships and six Scorpene submarines are under construction in various Indian shipyards.

Career Options and Job Content in the Navy

There are multiple options to join the India Navy, for more details please click the under mentioned link:

<http://nausena-bharti.nic.in/officer1.php>

Miscellaneous Latest Additions to Armed Forces.

Mounted Gun System (MGS) 15 mm Gun

The Defence Industry of India has manufactured a new mounted gun system (MGS) based on an HMV 8x8 Military Truck Chassis ATAGS (Advanced Towed Artillery Gun system) cannon mounted at the rear of the truck chassis. This is fully indigenously developed & produced in India. This has a shoot & Scout capability to dodge the enemy's counter bombardment. It has maximum firing range of 35 and 45 kms using ammunition with extended range. It has a burst rate of fire of 3 rounds in less than 30 second & reach a sustained rate of front of 42 rounds in 60 minutes. The front of the MGS is fitted with an armored plated

protection for the crew cabin which provides safety against small arms / artillery splinters to its 7 member detachment.

Miscellaneous Latest Add ons

- India made Israeli Tavor X 95 Rifles.
- India made AK-203 Rifles with Russian collaboration at Amethi (UP)
- Rs. 48000 Crore deal with Hindustan Aeronautic Ltd to procure 83 new Tejas light combat aircrafts.
- Over Rs. 1000 Crore defence procurement contract with Bharat Electronics for modern radio system.
- The Indian Army is going to get 118 Arjun Mark – 1A Tanks worth Rs. 8400 Crores.
- The newest technologies include advanced computing, big data analytics, artificial technology, autonomy, robotics, directed energy, hypersonics, biotechnology and anti drone technology.