

YOJANA SUMMARY

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- Indian Space Programme began with the **vision of Dr Vikram Sarabhai** that we must be second to none in the application of advanced technologies for the benefit of society.
- It was with the formation of the **Indian National Committee for Space Research (INCOSPAR)** in 1962, followed by the **first sounding rocket launch from Thumba** Equatorial Rocket Launching Station in 1963 that the space programme formally took off.
- **The Indian Space Research Organization (ISRO) was formed in 1969**, superseding INCOSPAR.
  - With the establishment of the Space Commission and the Department of Space (DOS) in 1972, ISRO was brought under DOS.

### Present Day Dedicated Clusters Of ISRO

- **Vikram Sarabhai Space Centre (VSSC)**, Trivandrum became the hub for sounding rockets, solid propellants, etc.,
- The cornerstone for payload development and related electronics is at Ahmedabad in the form of **Space Applications Centre (SAC)**.

### Journey of ISRO

#### A. Satellite

- India's **first satellite Aryabhata**, which was launched on 19 April 1975, from a launch centre in the former Soviet Union. Later, Bhaskara-I and II, the two experimental earth observation satellites, provided the confidence to build complex operational remote sensing satellites.
- **APPLE- Ariane Passenger Payload Experiment** was India's first experimental communication satellite. These satellites were launched free-of-cost, which reflects India's successful international space cooperation policy.
- Two further significant satellite communication experiments were **SITE– Satellite Instructional Television Experiment (1975-76)** and **STEP– Satellite Telecommunication Experimental Project (1977-79)**. This paved the way for INSAT (Indian National Satellite) series of satellites.

#### B. Transportation

- In the space transportation domain, the commissioning of the **Satellite Launch Vehicle-3 (SLV-3)** project in the early 1970s was the first indigenous experimental satellite launch vehicle.
- As a **four stage, all solid, launch vehicle**, SLV-3 had its successful launch in July 1980, thrusting India into the select league of six countries with the capability to launch satellites on their own.
- The **ASLV- Augmented Satellite Launch Vehicle** project, in the early 1980s, was the next step of evolution in launch vehicle technology.
- In mid 80s came the **Polar Satellite Launch Vehicle (PSLV)** project. PSLV was successfully launched in 1994.
  - The vehicle has **proven to be a workhorse of ISRO**, logging over 50 successful missions, launching national as well as foreign satellites.
  - On 15 February 2017, **PSLV created a world record by successfully placing 104 satellites**.
- The nation embarked upon a highly challenging quest to master the complex cryogenic technology. The commissioning of the **Geosynchronous Satellite Launch Vehicle (GSLV)** in the 1990s was a step in this direction.

- The launch vehicle was designed with three stages (including the cryogenic upper stage), with four liquid strap-ons.
  - Cryogenic technology involves the **storage of liquid hydrogen & liquid oxygen at very low temperatures**.
- With the successful qualification of the **indigenously developed Cryogenic Upper Stage** in the **GSLV-D5 flight in January 2014**, ISRO demonstrated its mastery of cryogenic rocket propulsion.
- The next-generation launch vehicle of ISRO, with a capability for putting 4T payload in GTO, came in the form of **GSLV-Mk III**.
- **LVM3-X/ CARE Mission**, the first experimental suborbital flight of GSLV Mk III, was in December 2014 and launched the Crew Module Atmospheric Re-entry Experiment (CARE).
- With the injection of **Chandrayaan-2** into Earth Parking Orbit in July 2019, GSLV Mk III successfully entered into its operational phase.

### C. Remote Sensing Satellites

- **INSAT-1B**, India's first multipurpose operational satellite was launched in 1983. It brought major revolution in India's telecommunications, television broadcasting, and weather-forecasting domains.
- in 1988, **IRS-1A**, the **first operational satellite** built in India, started imaging the earth. During the 1990s, ISRO began building INSAT-2 series of multipurpose satellites indigenously.
- Today, India has a fleet of advanced remote sensing satellites. **High Throughput Satellites (HTS)** such as GSAT-11, GSAT-29, and GSAT-19 are supporting the Digital India campaign by boosting the broadband connectivity to the rural and inaccessible Gram Panchayats in the country.

### Achievements

- The space science missions of India— Chandrayaan-1, Mars Orbiter Mission, AstroSat, and Chandrayaan-2— have caught the attention of the world.
- With **Chandrayaan-1**, India became the **fourth country to send a probe to the lunar surface** after the United States, the Soviet Union, and Japan.
  - Chandrayaan-1 conclusively **discovered water molecules on the lunar surface**, it was widely hailed as a path-breaking discovery.
- Launched by PSLV in November 2013, the Mars Orbiter Spacecraft encountered Mars in September 2014. With this, **ISRO has become the fourth space agency** to successfully send a spacecraft to Mars orbit.
- **AstroSat recently made a major breakthrough by discovering one of the earliest galaxies in extreme-Ultraviolet light**.
- ISRO has also successfully established and operationalised **Navigation with Indian Constellation (NavIC)** which provides highly accurate Position, Navigation, and Time information to users.
- Further, through **GPS Aided GEO Augmented Navigation (GAGAN)**, ISRO is providing Satellite-based Navigation services for better Air Traffic Management over Indian Airspace.
- The **Gaganyaan Programme** was approved by the Government of India in 2018. The **Human Space Flight Centre (HSFC)** was constituted in ISRO for implementing the vision on the human space flight programme.
  - The Gaganyaan project has the stated objective of demonstrating human space flight capability to Low-Earth Orbit (LEO) for a defined duration and safe recovery after the mission.

### Recent Reforms

- The creation of the **Indian National Space Promotion and Authorization Center (IN-SPACE)** to promote, handhold, and authorise Non-Government Private Entities (NGPEs) to undertake space activities shall unleash the next wave of advancements in the sector.
- Empowering the department PSU- **NewSpace India Limited (NSIL)** to own the operational launch vehicles and space assets of ISRO, opens up a new chapter in the management of space activities in the country.
- Further, the present supply-based model was changed to a demand-driven model, wherein **NSIL shall act as an aggregator** of user requirements and simultaneously obtain commitments.

### INDIAN ARMED FORCES

#### Phase – I

- This phase commenced immediately after the independence, in the war in Kashmir (1947-48), and terminated with the debacle of the 1962 India-China war.
- This period saw relatively young and inexperienced Indian officers being catapulted overnight into mid-level and senior positions in the armed forces. The doctrines, training, and experience that guided them so well during WWII was ill-suited in independent India.
- One of the greatest lessons of the 1962 conflict perhaps was the realisation that with regard to territory **possession was nine-tenths of the law.**
- China's entry first into Tibet in 1950, and later its creeping presence in Aksai Chin over the following decade taught us to think in terms of precise borders, not just frontiers.
- Another lesson was that an army must be well-equipped with the latest weaponry to protect India's territorial integrity.

#### Phase – II

- The second phase of the journey of the armed forces lasted until 1988. The realities of the evolving military preparations on the Pakistani side demanded a shift on the Indian side to mobile fast-paced warfare on land with the ability to undertake deep strikes in the open terrain of the deserts.
- This led to emphasis on **mechanisation of the Indian Army** and upgradation of the other two services as well.
- The modernisation of the armed forces was also accompanied by a willingness to venture beyond India's borders in support for calls from neighbours for assistance.
  - E.g., the peacekeeping mission in Sri Lanka spearheaded by the Indian Peace Keeping Force (IPKF) and
  - Operation Cactus in Maldives against an attempted coup in 1988.

#### Phase – III

- A new phase in the journey of the Indian Armed Forces commenced in the mid-1980s. India had managed to keep in check **subconventional threats such as insurgencies** in the NorthEast and terrorism in Punjab.
- However, the threats to the nation were magnified by the adversities encountered in the **deployment in Operation Pawan in Sri Lanka** and the spike in **Pak-sponsored cross-border terrorism in Kashmir.**
- The involvement of Pakistan became more pronounced in Kashmir, as terrorism emerged as its primary instrument in the low-intensity hybrid war against India.

- The **Kargil war in 1999** raised questions about the effectiveness of intelligence gathering, and the need for regular patrolling of India's border regions. The Kargil episode also questioned about structures and institutions.
- To address these concerns, the **Kargil Review Committee (KRC)** and **Group of Ministers (GoM)** were formed. On their recommendations, some early measures undertaken included:
  - The appointment of a full-time National Security Adviser, creation of multi-Agency Centre, the establishment of a tri-services command in the Andaman & Nicobar Islands, and NTRO.
- The 2008 dastardly terror attacks in Mumbai occasioned the **revamping of the National Security Guard (NSG)** and **beefing-up of maritime security** through the Indian Coast Guard and the Indian Navy acting in tandem with state police.

#### Phase – IV

- The Government undertook major course correction in 2014. A proactive approach was adopted to **enhance the budget** for all three wings of the armed forces.
- Apart from preventing sea-mounted terrorist attacks & piracy, **India's maritime security must now factor in the growing presence of the China in the Indian Ocean.**
- A **policy of zero tolerance** was adopted in regard to terrorism from across the border. This resulted in a crossLoC strike against terrorist camps in 2016 after Uri attack and Balakot airstrike in 2019.
  - Now, **caution was replaced by a proactive approach** and it was Pakistan that was forced to assume a reactive posture against India's actions.
- Both in 2017 and 2020, Chinese attempts at altering status quo were not only challenged, but also blunted through immediate action by Indian armed forces.
- Today, the armed forces are also **leading the way in support of Atmanirbhar Bharat**. A wide-ranging set of measures have been undertaken to give a fillip to Make in India.
  - Current policies leave enough space for foreign Original Equipment Manufacturers to participate in joint ventures and Transfer of Technology
- In addition to permanent commissions, women are also flying combat aircraft, deploying on naval vessels, and will soon be permitted to train alongside their male counterparts at the prestigious National Defence Academy.
- On 15 August 2019, the Prime Minister announced the path-breaking decision of the Government to create the post of Chief of Defence Staff and the Department of Military Affairs.
  - The process is being further strengthened with reforms aimed at integration at the level of theatres as well as jointness down the chain of command.

#### **SWADESHI ENTREPRENEURSHIP**

- The idea of **economic swadeshi** emerged by the second half of the 19th century. **Gopal Hari Deshmukh** was one of the firsts to advocate economic swadeshi in 1849.
- But the credit for translating it to a call to action goes to the college faction of the Arya Samajists in Punjab.

### Pre-Swadeshi Movement

- A group of middle-class, western-educated Punjabis including Lala Lajpat Rai came together to found the **Punjab National Bank (1894)**. This was the **first major Indian-owned bank**.
- **Lala Harkishan Lal** went on to found a series of jointstock companies. These included insurance firms (**Bharat Insurance** was the first major Indian-owned insurance company), flour mills etc.
- In Bombay, a **Parsi lawyer Ardeshir Burjorji Sorabji Godrej** came to realise the importance of indigenous manufacturing. He founded Godrej & Boyce in 1897.
- Acharya **Prafulla Chandra Ray** was founder of **Bengal Chemicals** (India's first pharmaceuticals company).

The **idea of trusteeship**, propounded by Mahatma Gandhi, found deep resonance with the Indian business elite.

With rising nationalism, there was a definite change in consumer culture too. People wanted to use local products as a **badge of their patriotism**. This also led to the emergence of a swadeshi retail network

### Swadeshi Enterprises

- The announcement of the Partition of Bengal (1905) unleashed a surge of nationalism and rekindled the Bengali entrepreneurial spirit. Members of the Tagore family and many others were regularly organising Swadeshi fairs.
- **National Insurance Company** (1906) and the famous **Hindustan Cooperative Insurance** (1907) was established.
- Bengal's leading figures came together to launch the most high-profile swadeshi venture – **Banga Luxmi Cotton Mill** (1906).
- The real achievement of the Bengali swadeshi entrepreneurs was to venture into new industries based on their technical knowledge.
- **Anandabazar and Jugantor** emerged as two successful media companies. Most of these ventures ended in failure.
  - They were built on the limited finances of petty landlords and the savings of professionals.
  - They had the technical knowledge but not always the business acumen.
- One of the great contributions of the swadeshi period was the **promotion of science**. Meritorious students were sent to Japan, Germany, and the USA for technical education. Some of them came back to set up successful businesses like Calcutta Chemicals, Calcutta Potteries etc.
- The National Education Movement (1905-1938) helped set up colleges and schools, and one of the institutions associated with it metamorphosed into **Jadavpur University**.
- A rejuvenated nation took great pride in the achievements of scientists like P C Ray and J C Bose, with a leading magazine calling Jagadish Chandra's plant response experiment, '**the greatest swadeshi event of 1906**'.
- In Bombay, Tribhuvandas Kalyandas Gajjar set up two small factories to produce a range of chemical products. He along with B D Amin, a rich Baroda landlord started **Alembic, Western India's first chemical company** (1907).
- The biggest beneficiary of the prevailing swadeshi sentiment was the Tatas. **Dorabji Tata's** efforts to raise money in London were not successful. Returning to India, he appealed to his fellow Indians and received an incredible response. In just three weeks, the Tatas could collect a huge 16.30 lakh pounds. This helped him in the establishment of modern steel factory in India.

### Swadeshi in Everyday Lives

- With rising nationalism, there was a **definite change in consumer culture** too. People wanted to use India-made/local products as a badge of their patriotism.
- Business ventures also appealed to patriotic feelings or Indian sensibilities– Banga Luxmi proclaimed that they offered Bengali cloth. Godrej promoted their soap as the **first vegetable soap in the world** (and it was endorsed by none other than Rabindranath Tagore).
- Thus, production, distribution, advocacy, and usage of such products (even when of inferior quality and costly) became an extension of one's patriotism and a way to contribute to nation-building.
- Another wave of Swadeshi enterprises sprung up in the 1930s. This time in response to Gandhiji's call for the boycott of foreign goods.

### Convergence

- The idea of trusteeship found deep resonance with the Indian business elite. Earlier, it was an alliance of interests but now it became a close personal bond. Businessmen like G D Birla and Jamnalal Bajaj emerged as Gandhiji's closest associates.
- There are two major landmarks in the evolution of this relationship:
  - In 1938, Congress President Subhas Chandra Bose set up a National Planning Commission under the chairmanship of Jawaharlal Nehru. This **Commission had prominent industrialists** like Purushottamdas Thakurdas, Walchand Hirachand, A D Shroff, and Ambalal Sarabhai as members, along with technocrat M Visvesvaraya and scientist Meghnad Saha.
  - In 1944-45, eight leading industrialists – J R D Tata, G D Birla, Ardeshir Dalal, Lala Shri Ram, Kasturbhai Lalbhai, A D Shroff, Purushottamdas Thakurdas, and John Matthai came out with a blueprint for independent India's economic development.
    - This '**Bombay Plan**' outlined the strategy for doubling of the agricultural output and fivefold increase in the industrial sector within 15 years. They accepted that **without State support this would not be possible**.
    - Though it was never officially accepted but the post-independence economic planning did follow the same path of State interventions and a mixed economy with large-scale public sector.

### Conclusion

- Bengal during the Swadeshi days saw for the first time, a concerted effort by educated middle-class entrepreneurs to build businesses based on their technical knowledge. Similarly, modern banking in India developed due to the efforts of these Swadeshi-inspired entrepreneurs.
- It was the swadeshi phase of Indian entrepreneurial history that showed a way to **shift from traditional commerce to modern industrial and financial sectors**.

## GLOBAL AGRICULTURAL POWERHOUSE

### Statistics

- India is efficiently feeding and managing nearly 18% of the world population with only 2.4% and 4% of global land and water resources respectively.
- India is now the **largest producer** of pulses, jute, and milk, and ranks as the **second-largest producer** of rice, wheat, sugarcane, cotton, and groundnuts in the world.

- It also holds the **second position** in global fruit and vegetable production with a high rank in the production of mango, banana, papaya, and lemon.

### Agricultural institutions during British regime

- India always practiced traditional agriculture. It was first recognised as a subject of scientific improvement in 1871 when **British established a 'Department of Revenue and Agriculture and Commerce'**.
- Some research institutions were established at a very slow pace, which later emerged as the light-house of agricultural development in independent India.
  - The **Imperial Bacteriological Laboratory** (1889) was the earliest institution established in Pune, which later evolved as the ICAR-Indian Veterinary Research Institute.
  - Similarly, the **Imperial Agricultural Research Institute** established in 1905 in Pusa, Samastipur, later became the distinguished ICAR-Indian Agricultural Research Institute (IARI) at New Delhi.
  - The **Imperial Institute of Animal Husbandry and Dairying** established in 1923 in Bangalore, later grew to become the eminent National Dairy Research Institute in Karnal.
- The **Royal Commission on Agriculture, appointed in 1926**, recommended the setting up of an Imperial Council of Agricultural Research. Thus, a central research coordination agency came up in 1929. Later, it was renamed the **Indian Council of Agricultural Research (ICAR)**.
- The Central Ministry of Food and Agriculture emphasised on commercial crops, and constituted semi-autonomous bodies or commodity committees to conduct research.
- The first such committee of cotton was established in 1921, which led to the development of 70 improved varieties and considerably improved fibre quality.
- On the agricultural education front, the **first Agricultural School** was opened at Saidapet, Chennai in 1868, which was later relocated to Coimbatore in 1906.

### Towards Self-Reliance

- Initially, India was not self-reliant in foodgrain production. During the 1960s, India continued with the escalation of imports, mainly from the USA under the **PL-480 scheme**. In and around 1965, the country suffered **three major setbacks on the food front**— severe drought, war with Pakistan, and imposition of strict curbs by the USA on delivery of wheat.
- In the Third Five Year Plan, the Government made a strong commitment to making the country self-reliant in foodgrains production, mainly through scientific and technological interventions.
- The Government of India **permitted trials of Mexican** wheat varieties in fields. These varieties, were developed by American Agronomist, Dr Norman E Borlaug. These were dwarf/semi-dwarf, rust-resistant.
- This trial was conducted under the mentorship of Dr M S Swaminathan. Farmers successfully harvested **4-5 tonnes per hectare yield** in contrast to earlier onetonne hectare with Indian varieties.
- In 1968, India reaped a bumper harvest of nearly 17 million tonnes of wheat that was just 11 million tonnes in 1966. This spectacular achievement was recognised as 'Green Revolution' over the world.
- **Indian rice breeders developed a series of 'IR' varieties** with a yield potential up to 10 tonnes per hectare.
- During the post-Green Revolution period, policy planners focussed more on research, extension, education, input supply, credit support, marketing, price support, and institution building. The new strategy has enabled the country to increase the production of foodgrains.

- As per fourth advance estimates, for 2020- 21, **total foodgrain production in the country is estimated at a record 308.65 million tonnes**. Horticulture production is expected to reach a record level of 329.86 million tonnes in 2020-21 (2nd advance estimates).

#### ICAR: Building Networks

- Currently, ICAR is managing R&D activities in 102 institutions. ICAR is also playing a major role in the promotion of excellence in higher agricultural education by mentoring and providing financial support to 71 State Agricultural Universities.
- ICAR also supports technology assessment, demonstration, and capacity development activities through a network of 11 Agricultural Technology Application Research Institutions and 721 Krishi Vigyan Kendras (KVKs) across the country.
- KVKs are small entities at the district level that perform frontline extension activities and are responsible for the implementation of 'Lab to Land' programmes.

#### Growth of higher education in Agriculture

- The first agricultural university of India was inaugurated in November 1960 as '**Uttar Pradesh Agricultural University**'. Later, it was renamed **Govind Ballabh Pant University of Agriculture & Technology**. During the Fourth Five Year Plan (1960- 65), seven State Agricultural Universities were established.
- In 1965, ICAR initiated a novel concept of '**All India Coordinated Research Projects**' (AICRPs) with a specific mandate– 'To conduct operational research and multi-location trials on developed technologies to identify technical, financial, managerial, and social constraints for better market acceptability to technologies'.

#### Creating Milestones

##### 1. Wheat

- Under the leadership of ICAR, '**HD**' series of wheat varieties were developed by IARI, New Delhi.
- The 'HD' series of wheat varieties now covers nearly 140 lakh hectare area out of 317 lakh hectare of wheat growing area in the country.
- **Per hectare productivity of wheat has now sky-rocketed to 3,424 kg, which was just 669 kg during 1946-47**. The nation harvested a record 110 million tonnes of wheat during 2020-21.

##### 2. Rice

- In rice, other than high-yielding, specific varieties were developed to perform well under drought or water-logged conditions.
- However, **Basmati rice varieties**, developed by IARI, won worldwide acclaim and popularity due to their exquisite aroma, flavour, and texture. The **Basmati variety 'Pusa-1121'** has earned the unique distinction of being the 'longest grain' variety in the world.
- India could earn equivalent to Rs 33,000 crore of foreign exchange by exporting basmati rice during 2018-19. India harvested a record 122.27 million tonnes of rice during 2020-21.

##### 3. Oilseeds and Pulses

- The recent introduction of exotic oil palm as an oilseeds crop has shown promise. Due to consistent efforts, oilseed production in the country has reached a record of 36.10 million tonnes during 2020-21.
- Increased productivity of pulses has led to record production of nearly 26 million tonnes in 2020-21.

#### 4. Other Achievements

- Total horticultural production is estimated to be 329.86 million tonnes (highest ever) during 2020-21 (2nd advance estimate).
- In the latest development, scientists have developed **bio-fortified varieties** of some major crops, which are 1.5 to 3.0 times more nutritious than the traditional varieties. **Recently, the Prime Minister dedicated 17 such varieties of eight crops to the nation.**
- To attain self-reliance in milk, '**Operation Flood**', was launched in 1970. In 1998, India became the largest producer of milk in the world, surpassing the USA. The transformation is widely known as '**White Revolution**'.
- Current milk production of nearly 200 million tonnes and **per capita milk availability crossing 400 gm per day.**
- Similarly, the targeted programme of '**Blue Revolution**' transformed the fisheries sector with an all-time high production of nearly 14.16 million tonnes between 2019 and 2020.
- On the global map, **India is the second-largest aquaculture-producing country and the third-largest fish producer.**

### ECONOMIC TRANSFORMATION

#### Situation At The Time Of Independence

- The treasury was bankrupt with little or no foreign exchange reserves.
- The immediate need was to obtain political consensus on inter-state disputes, a new constitution, and a plan for economic development.
- There was the issue of how to engage in international economic relations with the dominant western powers from which India had just gained independence.

#### Early Phase

- India's political relations with economic powers like the US and UK were not very good. This led to closer economic and political relations with the then USSR, helped by the **rupee-ruble exchange programme**.
- India adopted the **Feldman model of economic development** based on a planned expansion of State-led heavy industries.
- However, the strategy of adding to the production capacity of the capital goods sector was ill-conceived as these capital goods were themselves import-dependent and needed scarce foreign exchange.
- Also, the inefficiency of the Feldman model became apparent when the production of capital goods became constrained by the need for imported components. In addition, the wars of 1962 and 1965 further stretched resources.
- Parallely, the growing population created a shortage of basic foodstuffs. India was being forced to import wheat from the US under the PL480 programme.
- Excessive concentration on the industrial sector producing capital goods and neglect of the agricultural sector implied a development model constrained by the availability of consumer goods.

#### Second Phase

- The need to limit consumption and conserve foreign exchange implied that **production by the private sector had to be limited by an industrial licensing system** where all imports requiring scarce foreign exchange were prohibited.

- The industrial licensing regime soon implied the discretionary issue of industrial licenses, crony capitalism, and ad hocism in the planning process. At the same time, increasing demand for consumer goods by a growing domestic population **led to an era of domestic shortages**.
- In the decade of the 1970s, **two major socialist initiatives** were undertaken: the **complete takeover of the wholesale trade in foodgrains** and, two, **nationalisation of the major banks**. The first measure was a complete failure and had to be repealed quickly.
- At the same time, the war for independence of Bangladesh led to additional shortages, followed by the extreme political instability of the late 1970s. Simultaneously, the shortage of foreign exchange reserves was exacerbated by the dramatic increase in the price of oil in the world market.
- It was during this period, coinciding with the end of the Third Year Plan and three years of Annual Plans, that it became clear that the **Feldman model of planned industrialisation was a failure**.

### Third Phase

- Subsequently, starting with the Technology Policy Statement of 1982, **production liberalisation and easing of imports of technology were initiated**. Foreign exchange shortages reached its peak in the 1980s so that by the end of the decade, India was in danger of renegeing on its external liability and being unable to pay for more than one month of imports.
- The **reforms of 1991 were a consequence of this**, leading to both domestic and external economic liberalisation and abandonment of the Feldman model of economic development.

### New Economic Paradigm

- The extent of the shift in the economic paradigm can be appreciated by a number of policy shifts that are continuing till date.
- In 1993, the **Industrial Policy Resolution** stated that the **country needed to engage FDI in all areas**. Today, the issue has changed from discouraging foreign investments to actively encouraging FDI with almost no restrictions.
- In areas like communications, automobiles, and other consumer goods, the private sector is not only the dominant producer but also an efficient producer. The era of endemic shortages in most consumer goods has now evolved into one where the constraints on production are demand and not supply.
- The other aspect of the new economic paradigm has been the developments in agriculture. Presently, agricultural production is also no longer a constraint on development.
- At the same time, present day India has moved away from being an agricultural-dominated economy where the share of GDP originating in agriculture is less than 15 per cent.

### Challenges

- Some experts have argued that **India has become a 'crisis-driven' economy** so that with the external crisis averted, domestic constraints have emerged.
- While economic theory is clear that the government has "no business being in business", yet attempts to reduce the government participation in areas like civil aviation, hospitality, etc., have faced strong political opposition.
- The declining share in agricultural production in GDP is actually an **indication of economic development and operation**. It is, however, a failure of structural adjustments and the strategy of industrial growth that a similar decline in the number of those whose primary livelihood originates in the agricultural sector is not observed.

- I.e., while India has effectively engaged with the world economy, the **required structural adjustment from an agrarian economy to modern industrial society is still incomplete.**

### **INFRASTRUCTURE: HISTORY & CHALLENGES**

#### **Infrastructure Development Model**

- The Industrial Policy Resolution (IPR) of 1948 proposed a mixed economy. The political leadership believed that since **planning was not possible in a market economy**, the state and public sector would inevitably play a leading role in economic progress.
- India set up the Planning Commission in 1950. India's first Five-Year Plan, launched in 1951, focused on agriculture and irrigation to boost farm output as India was losing precious foreign reserves on foodgrain imports.
- It was based on the Harrod–Domar model. By the end of the Plan in 1956, five Indian Institutes of Technology (IITs) were started. The **University Grants Commission (UGC)** was set up to take care of funding and take measures to strengthen higher education in the country. Contracts were signed to **start five steel plants**, which came into existence in the middle of the Second Five-Year Plan.
- The **Second Five-Year Plan and the Industrial Policy Resolution 1956** paved the way for the development of the public sector and ushered in the License Raj. The Second Plan focused on the development of the public sector and 'rapid Industrialisation'. The Plan followed the Mahalanobis model.
- Hydroelectric power projects and **five steel plants** at Bhilai, Durgapur, and Rourkela were established with the help of the Soviet Union, Britain (the UK), and West Germany respectively. Coal production was increased enormously. The **Tata Institute of Fundamental Research (TIFR)** and the Atomic Energy Commission of India were established.
- Power and steel were identified as the key bases for planning. The 680ft **Bhakra multi-purpose project on the Sutlej River** was considered a new landmark of a resurgent India.
- **Nationalisation of 14 public sector banks** was a major event during the Fourth Plan (1969- 74).

Cambridge historian Angus Maddison's work shows that **India's share of world income shrank from 22.6% in 1700 (almost equal to Europe's share of 23.3%) to 3.8% in 1952.**

#### **Challenges**

- Infrastructure provisioning requires massive investments, often over a prolonged duration of time, coupled with procedural delays and returns expected after a long period of investment.
- Hence, public investments alone may not be sufficient to fund infrastructure development in India.

#### **Recent Milestones**

- We are expected to become a USD5 trillion economy by 2024 and aspire to become a USD10 trillion economy by 2030.
- Between the present and 2030, approximately 700 to 900 million square metres of urban space every year will be constructed. India is witnessing rapid urbanisation.
- Government of India launched **Pradhan Mantri Awas Yojana (PMAY)- Urban** in 2015. The larger goal is to fulfill the housing needs of homeless urban poor and enable them to own decent pucca houses with basic infrastructure facilities by 2022.
- In the wake of Covid-19 pandemic, aligning to the vision of Atmanirbhar Bharat, Ministry of Housing and Urban Affairs (MoHUA), has initiated **Affordable Rental Housing Complexes (ARHCs)** for urban migrants/ poor.

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## VAJIRAM & RAVI

- ARHCs will play a vital role in wealth creation, development of infrastructure, and providing dignified living will all basic amenities to the urban poor/ migrants. These initiatives will be effective in spurring housing and construction activities, providing huge relief to real estate developers. Also, these would attract private and foreign investments in the housing sector, having a positive multiplier effect on GDP and labour market.
- **Bharatmala Pariyojana** is a new umbrella programme for the highways sector that focuses on optimising the efficiency of freight and passenger movement across the country.
- This project will bridge the critical infrastructural gaps through effective interventions like the development of Economic Corridors, Inter Corridors, Feeder Routes, National Corridor Efficiency Improvement, Border and International connectivity roads, Coastal and Port connectivity roads, and Green-field expressways.
- A total 24,800 kms are being considered in Phase I of Bharatmala project. **Improvement in the efficiency of existing corridors** through the development of Multi-Modal Logistics Parks.

### Urban Mass Rapid Transport

- The concept of mass rapid transit for New Delhi first emerged from a traffic and travel characteristics study which was carried out in the city in 1969.
- Later, the Government of India and the Government of Delhi jointly set up a company called the **Delhi Metro Rail Corporation (DMRC)** in 1995, with E Sreedharan as the Managing Director.

### Way Forward

- The Introduction of '**MetroLite**' or '**MetroNeo**', as recommended by the Government, is mandated in cities with lower capacity requirements.
- **Innovative financing mechanisms** to fund metro projects are required to be explored and Non-Fare Box revenue streams are to be augmented. Provisions have been made in Metro Bill to attract private investment.
- Although investments in infrastructure alone do not guarantee growth, in general, scholarly studies estimate that a **strong association exists between the availability of infrastructure provisions and economic growth** measured in terms of gross domestic product (GDP).
- In other words, industrial growth is contingent upon the development of other infrastructural facilities. However, infrastructure development in itself remains both a financial and a regulatory challenge.
- Hence, efforts must be made to adequately channelise the opportunities for private participation in the real estate/housing sector.

## VOYAGE OF INDIAN CINEMA

- When the moving images, a **glorious invention of the Lumiere Brothers**, were projected on a screen in Watson Hotel in Bombay on 7 July 1896, it heralded a new era in the India.
- **DG Phalke** was determined to make an Indian film and his dream came true **in 1913**. He shot **India's first feature film *Raja Harishchandra***.
- A year before, **Dada Torney had successfully made *Pundalik***, a fascinating religious subject. The only difference was that it was shot by an English cameraman and filmed a stage drama rather than a single feature.
- Phalke later established the **Hindustan Cinema Film Company** with partners and started making films almost all by himself. Braving all difficulties and securing finance in war-like situations, Phalke is credited to lay down the firm foundations of the Indian film industry.

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## VAJIRAM & RAVI

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- The technology of sound was yet to arrive, and the films were silent only.
- The **Indian Cinematograph Act passed in 1918** paved the way for the system of film censorship in the country. Thus, the **Board of Film Censors was set up in 1920** to scrutinise and certify the films before their exhibition.
- ***Keechaka Vadham*** was the **first silent film made in South India**. The Light of Asia, a co-production between India and Germany, directed by Himanshu Rai, helped popularise India cinema abroad.
- By the late 1920s came the technology of sound. It was **Ardeshir Irani** who got it first by releasing **Alam Ara** in March 1931. The film had spoken dialogues along with songs.
- The **introduction of colour** was another technological progress for the cinema industry and yet again **Ardeshir Irani** took the lead by producing ***Kisan Kanya***, the **first colour film shot and processed in India**.
- As the second world war loomed largely, a Film Advisory Board was set up for the production of films that aided war efforts. The war impacted the availability of raw stock and it also **resulted in introducing the licensing system**.

### Institutional Setup After Independence

- After independence, a **Film Enquiry Committee** was constituted under the chairmanship of SK Patil. It eventually led to the establishment of the **Film Institute of India** to teach the art of filmmaking, **The Film Finance Corporation of India** to assist the budding filmmakers, and **the Children's Film Society of India**.
- The **National Film Archive of India** was also established to preserve the cinematic heritage of our country. The earlier Information Films of India became the Films Division to produce short films and documentaries.
- The **first International Film Festival of India held in 1952**.

### Technological Changes

- The arrival of television in India brought films directly into households. The technology of filmmaking and exhibition shifted gears and celluloid gave away to digital. With the help of subtitles in English, the good films made in any language found an eager audience both in India and abroad.
- The **over-the-top (OTT)** technology is a harbinger to newer vistas for the film industry. Instead of a regular release in theatres, the films are now being released on the digital platform. Even, films are being made exclusively for such platforms.
- The **community way of consuming the content is slowly being replaced by private viewing in the comforts of one's home**. At the same time, the new filmmaker is no longer dependent on the vagaries of the regular commercial distribution system.
- He has now new avenues to explore that can showcase the content to a worldwide audience.
- But despite all the advancements in technology, the **film is after all a medium of telling stories**. As long as these stories are humane and interesting, the medium of cinema will continue to thrive.

### ROLE OF MEDIA

- The development of newspapers in India began in 1780 when **James Augustus Hicky** launched India's first newspaper, **'Bengal Gazette'**, in English. Media has played a significant role in awakening social consciousness since the time of the independence movement.

When the publication of the first Hindi newspaper '**Udant Martand**' began, its motto was 'For the interest of Indians'.

- The media has always been a vehicle of change and consciousness. It acts as a communication link between the government and the public, while on the other hand, it also keeps a check on the functioning of the government.

### Changing Roles

- The communication revolution has brought forth the **challenge of factual representation** before the media in the prevailing scenario of a **conflict between credibility and popularity**.
- This connectivity has resulted in the **birth of digital media**, which is also known as **new media**. The 21st century is being considered as the century of the '**Internet and Social Media**'. Today, social media is determining several aspects of our lives.
- According to an estimate of the American company Cisco, by 2021, the **number of smartphone users in India is likely to double to about 83 million**.
- India is the biggest market for these media, and through them, fake news is garnering maximum publicity today. In a developing country like India, where education and awareness levels differ, people vacillate between multiple news and information choices. Sometimes they cannot check the facts and accept wrong as right. A survey report by Microsoft in 2019 pointed out that **64 per cent of Indians are the victims of fake news**.
- Earlier, information reached the people only through an approved process. Limited people were managing them who followed the rules and the law. But technology changed everything. Today, **everyone is a creator and publisher**.
- Now, the dissemination of information on a large scale is not limited to the elite class or conventional media. Because of these networks, it has become impossible to stop the flow of information.

### Era of Post-Truth

- When something is beyond the truth, when there is no difference between falsehood and truth, when the idea of right and wrong is not based on facts or knowledge but sentiments, it is called post-truth.
- In such a time, awareness and understanding will have to be created about 'information.'

### **RE'FORMING' CASTE IN NEW INDIA**

- In pre-independence India, **caste was seen as a 'social' question**; it was a subject of social reform.
- It was a period where there was some cognition of issues linked to discrimination and exploitation on basis of caste, and on the other hand, **caste continued to be the basis of the organisation of communities at large**.

### Caste: Subject of State Policy and Reform

- The adoption of specific provisions for prevention of discrimination as well as the adoption of principles of affirmative action especially for the Scheduled Castes, was a significant and foundational reform.
- With this, the domain of caste reform included the political and economic sphere and it was not just restricted to 'social' sphere as in the pre-independence era.
- Now, the state as an institution has the onus of transformative action in relation to caste.
- Institutionalisation of practices such as reservations in education, jobs, and election of people's representatives has been much easier than the transformations in the structure of these institutions and the texture of actual governance.

### Existing Challenges

- It should be recognised that the **lower castes and several sections of Dalits bear the unfair burden of these inequalities**. Within this structure, **Dalit women bear these burdens even more**.
- Dr Ambedkar viewed cities and urbanisation as possible sites of liberation for Dalits. However, as urbanisation becomes a significant phenomenon, it is seen that cities only shift the domains of caste expression.
- Thus, certain 'unclean, insanitary' occupations are considered to be exclusively practiced by Dalits, thereby perpetuating the tradition. Similarly, the predominance of Dalits in slums in the cities can be seen as an expression of their legacy of spatial exclusion from the villages.
- Some studies show that the **digital space is highly casteist**. Elections at all levels of the government accept and build on caste equations and mobilisations.
- We may be very far from a casteless society but we have definitely moved the needle from a society in which caste was an accepted dispenser of privilege to one where such dispensation of privilege on the basis of birth is contested and challenged.

### PREPARING FUTURE LEADERS

- Over 67 per cent of Indians are between the ages of 15 and 65, or of working age. The visionary Atmanirbhar Bharat initiative seeks to capitalise this inherent potential and generate employment for the 12 million Indians who join the workforce every year.
- Recognising this, the Government established a dedicated Union Ministry in 2014 in the name of **Ministry of Skill Development and Entrepreneurship (MSDE)**.
- MSDE manages short-term schemes like the Skill India Mission, Pradhan Mantri Kaushal Vikas Yojana and various other long-term training initiatives.

Skills are generally classified under three broad categories: **transferrable or functional skills** that can be deployed across multiple industries; **attitudinal skills** that define personality characteristics; and **knowledge-based skills** that pertain to the subjects, procedures, and information necessary to perform particular tasks

### Nurturing Aptitude

- MSDE, with loan assistance from the World Bank, manages a programme called **Skill Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP)**. It aims to improve short-term skill training qualitatively and quantitatively through strengthening institutions, bringing in better market connectivity, and enhancing the inclusion of marginalised sections of society. Launched in January 2018, SANKALP will run through March 2023.

### Skill Development

- The **National Skill Development Mission** was launched in July 2015 on World Youth Skills Day.
- Skill India Mission provides the institutional capacity to train a minimum of 300 million skilled people by 2022.

### Inspiring Knowledge

- The **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)** is a flagship scheme of the MSDE that aims to train Indian youth between the ages of 15 and 45 to take up industry-relevant skill training and secure a better livelihood.
- The Scheme is particularly targeted towards marginalised groups including transgenders and people with disabilities.

- The PMKVY support training in soft skills, entrepreneurship, and financial and digital literacy. It is aimed at benefitting candidates in schools or college dropouts and unemployed youth who are trained according to the National Skills Qualifications Framework (NSQF).
- PMKVY also has provisions for **recognising prior learning** (RPL) and helping individuals obtain certification for their skills that is in accordance with NSQF norms.
- The Ministry of Rural Development also heads the **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)**, a scheme dedicated to creating employment opportunities in rural India, with a special focus on the youth population, aged between 15 and 35, 69 per cent (180 million) of which live in rural areas.
- The objective of the DDU-GKY scheme is to bring income diversity to rural families and cater to youth aspirations from these households.