



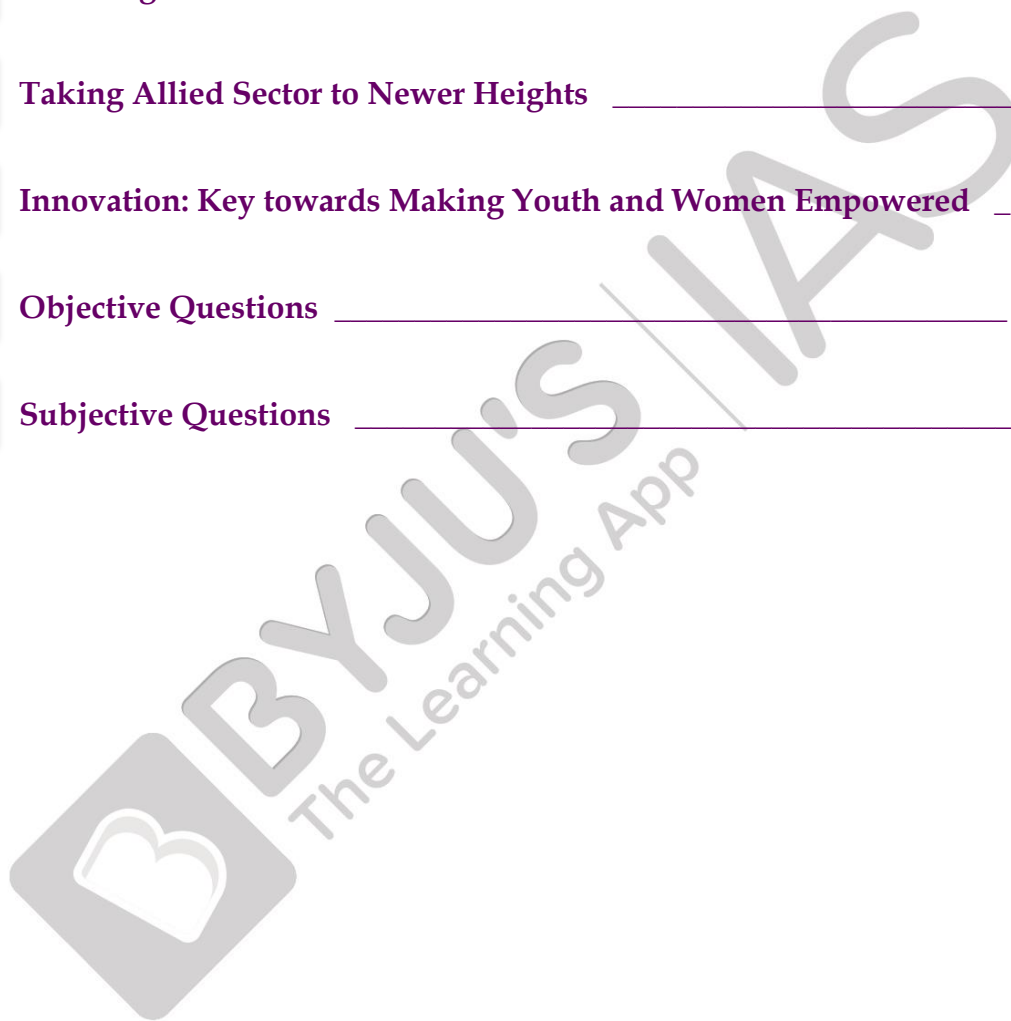
# YOJANA AND KURUKSHETRA

**Webinar Handout**

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YOJANA (JUNE 2021) AND KURUKSHETRA (MAY 2021)

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## 1. Policy and Practice

### Context

- Developing countries like India do not accord the priority to healthcare that the sector really deserves. This pandemic must be used as an opportunity to learn the lesson and take corrective measures towards 'Health for All' in letter and spirit.

### Health for All (HFA) - Historical perspective

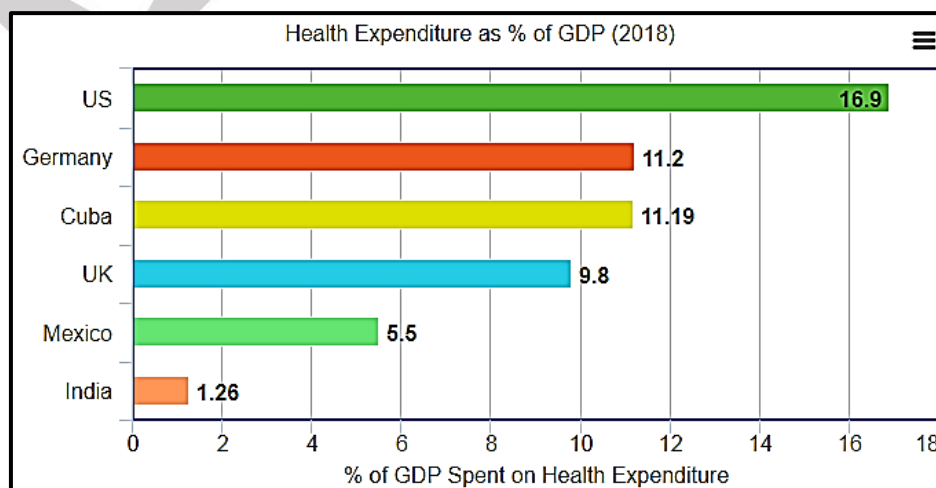
- United Nations:** In Alma Ata Declaration in 1978, the UN envisaged comprehensive and integrated primary health care for all.
- World Health Organisation:** The constitution of the World Health Organization (WHO) mentions health, well-being, the standard of living, medical care, right to security in case of sickness as well as special care and assistance for mothers and children in the context of 'Health for All'.
- Universal Declaration of Human Rights:** Article 3 of the Universal Declaration of Human Rights, 1948, clearly provides that everyone has 'the right to life, liberty and security of person'. The right to life includes the right to food and health as interpreted by the Supreme Court of India.

### Impact of Liberalisation and Privatisation of 1980s on Healthcare:

- Decline in public investment:** Since the state retreated from development interventions, there was a massive decline in public investment in the health sector.
- Shortage of doctors and medical equipment:** There accrued a huge shortage of doctors and supporting medical staff. There was also a shortage of medical equipment, drugs and pathological facilities in public health institutions
- Rising costs:**
  - Patients were compelled to buy medicines from the open market and to get pathological tests done at private labs at higher costs.
  - Private doctors not only indulged in charging exorbitant fees but also prescribed unnecessarily more and costlier medicines as well as avoidable pathological tests.
- Shift to private clinics:** Due to the laxity of the state regulatory apparatuses, even government doctors and supporting staff started giving more time at their private clinics.
- Rise in communicable and non-communicable disease:** Due to the retreat of the state in providing subsidised food, sanitation facilities, there was a rise in communicable and non-communicable diseases, leading to a long duration of morbidity, and finally death.

### State of India's health and healthcare system

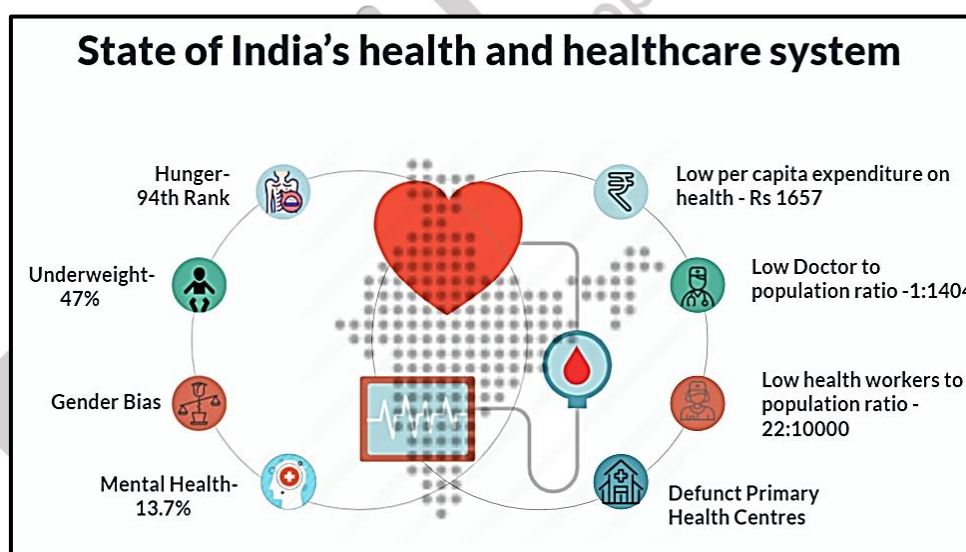
- Low per capita public expenditure on health:** India's per capita public expenditure on health in nominal terms is just Rs. 1,657 (2018-19) - much lower than that in Sri Lanka (Rs. 5,000) and Indonesia (Rs. 3,500).



- **Doctor to population ratio:** Against the WHO norm of doctor to population ratio of 1:1000, India has a very low ratio of 1:1,404, the situation being worse in rural areas at 1:11,000.
- **Health workers to population ratio:** Against the WHO norm of 44.5 health workers per 10,000 population, India has only half that number.
- **Defunct PHCs:** Most PHCs (Primary Health Centers)\Health Centers are almost defunct in many north Indian states where there are no facilities like beds, medicines, pathological tests etc.
- **Hunger:** In Global Hunger Index 2020 India ranked 94 out of 107 countries, with a score of 27.2 (in 'serious hunger' category - score range of 30-34.9)
  - As per the report
    - 14% of the Indian population is undernourished.
    - 17.3% of children under 5 are wasted
    - 34.7% of Indian children are stunted

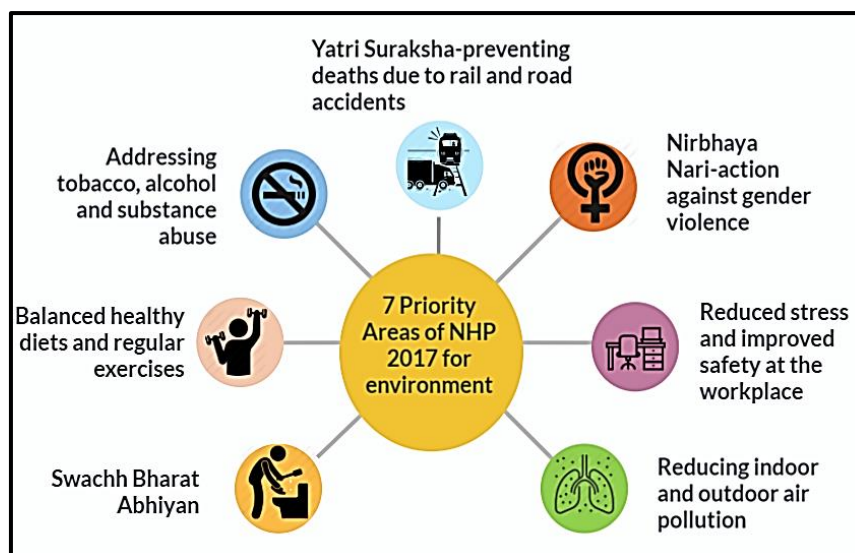
**Note:** During 2000-2020 GHI score for India has declined from 38.9 to 27.2 - a decrease of 11.7 percentage points.

- **Underweight:** In India, about 47 per cent of children are underweight (According to World Health Organization (2015), under-nutrition or malnutrition is the major cause of death among children below 5 years)
- **Gender bias:** There is gender disparity and male bias in national and local health care:
  - In 2016, of the 23.8 lakh patients who visited AIIMS, New Delhi for treatment, only 37% were women, though it is confirmed that women report more illnesses than men.
  - Though women's bodies respond differently to drugs due to smaller organs, higher fat & hormones, the medical tests/research on male bodies are taken as the reference point.
- **Mental health:** As per the National Mental Health Survey (2016) lifetime prevalence of mental illness in India is 13.7% and 28% of global suicides occur in India. Even then 26% of people have no mental health facility within their 50 km radius.



**Initiatives by the Government of India towards better healthcare**

- **National Health Policy 2017:** National Health Policy 2017 speaks of targeting 2.5% of GDP to be spent on health.
- **Environment for Health:** The National Health Policy 2017 identified 7 priority areas for improving the environment for health:



- **Shifts in Public Health care Delivery:** There are 7 shifts in organising public healthcare services:
  1. **Primary care** - from open selective care to assured comprehensive care with linkages to referral hospitals.
  2. **Secondary and tertiary care** - from an input-oriented to an output-based strategic purchasing.
  3. **Public hospitals** - from user fees and cost recovery to assured free drugs, diagnostic and emergency services to all.
  4. **Infrastructure and human resource development** - from normative approach to targeted approach to reach under-serviced areas.
  5. **Urban health** - from token interventions to on-scale assured interventions so as to organise primary health care delivery and referral support for urban poor.
  6. **National Health Programmes** - integration with health systems for programme effectiveness
  7. **AYUSH services** - from stand-alone to three dimensional mainstreaming.

**Notable achievements of/in India:**

- On 2 October 2019, India's more than 700 districts and about six lakh villages were declared 'open defecation free (ODF)'.
- The Uttar Pradesh government named toilets 'izzat ghar' which has had a positive social impact.

**Way Forward**

- **Alternative health systems:** There are some alternative health systems in Cuba, China, Costa Rica, Malaysia, Sri Lanka, Rwanda, Venezuela and Thailand from which we can learn.
  - **Thailand:**
    - Health expenditure in Thailand increased from 1.7 percent of GDP in 2001 to 2.7 per cent in 2008 higher than that in India.
    - Since 2002, there is Universal Health Care (UHC) coverage in Thailand for all people without any charge and 77 percent of all hospital beds are in the public sector.
  - **Cuba:** There is equitable health service delivery with regulations like three years of compulsory rural service for doctors and nurses.
- **Funding:** There is a radical shift in funding away from urban hospitals to primary health care across Thailand and Cuba. India can emulate this.

**Conclusion**

- The developing countries like India have to increase their budget on health as a proportion of Gross Domestic Product and as a share of public expenditure to total expenditure per capita on health as 'Health for All' not only ensures human resource development, but also the well-being of our future generations.

## 2. E-Waste Management

### Context

- According to the Global E-waste Monitor report, 2020, the world dumped a record 53.6 million ton (Mt) of e-waste in 2019, while recycling only 17.4% of it.
- In this context of the rising e-waste generation and poor management thereof, we discuss the status of E-waste management in India.

**Note: Global E-waste Monitor report** is a collaborative product of the Global E-waste Statistics Partnership (GESP), formed by UN University (UNU), the International Telecommunication Union (ITU), and the International Solid Waste Association (ISWA), in close collaboration with the UN Environment Programme (UNEP).

### E-waste

- Electronic waste or e-waste is the waste arising from end-of-life electronic products, such as computers and mobile phones.

### E-waste Management

- **E-waste management:** E-waste management refers to the scientific handling of e-waste in order to recover the valuable materials from it and manage the toxic substances arising out of its disposal in an environmentally sound manner.
- **Management:** The e-waste can be managed either formally or informally:
  - **Formal management**
    - **Collection:** E-waste is collected by designated organisations, producers, Government (such as municipal collection sites), retailer take-back, and producer take-back.
    - **Handling:** The e-waste is taken to a specialized treatment facility, which recovers the valuable materials and manages the toxic substances in an environmentally controlled manner. Residuals are incinerated or safely landfilled.
  - **Informal management**
    - Here, the e-waste may be picked door-to-door and sold to an informal dealer who may repair, refurbish, or sell again to a backyard recycler.
    - This informal management process runs the risk of the waste, not being aptly treated to secure the disposal in an environmentally sound manner.

### Evolution of India's regulatory ecosystem

#### Necessity for regulation

- **Rising e-waste generation:** As the Indian electronics sector boomed in the last decade, increased production and penetration of imported e-waste generation necessitated regulatory control over the sector.
- **Dumping of e-waste by the developed countries:** Because of the high cost of recycling, e-waste companies in developed nations opted to ship their e-waste overseas to dump them in developing nations.
- **Awareness campaigns:** The above two factors prompted many awareness-raising campaigns by non-governmental organisations (NGOs) and multilateral institutions.

This prompted the government to finally take action.

#### Actions taken by the Government

- **General waste management regulations, 2008:** The Government of India introduced the general waste management regulations in 2008, calling for responsible e-waste management.
- **Extended Producer Responsibility (EPR):** To further streamline e-waste management, the Government notified **Electronic Waste (Management and Handling) Rules 2011**, introducing Extended Producer Responsibility (EPR).

**Note: Extended Producer Responsibility (EPR)**

- In EPR, manufacturers/producers were required to collect and recycle electronic items.
- Since manufactures were incurring the disposal cost, their designs would now incorporate less toxic and easily recyclable materials, thereby reducing input material requirement.
- In theory, this created incentives for more environment-friendly product designs.

**Amendment of e-waste rules in 2016:**

**Issues existing rules:**

- In the absence of targets, and in a relatively lax regulatory environment, producers had little incentive to ensure the collection of their used products.

**Deposit refund system and collection targets:**

- The e-waste rules in 2016 were amended to include collection targets and implementing a deposit refund system (DRS) by the producers.

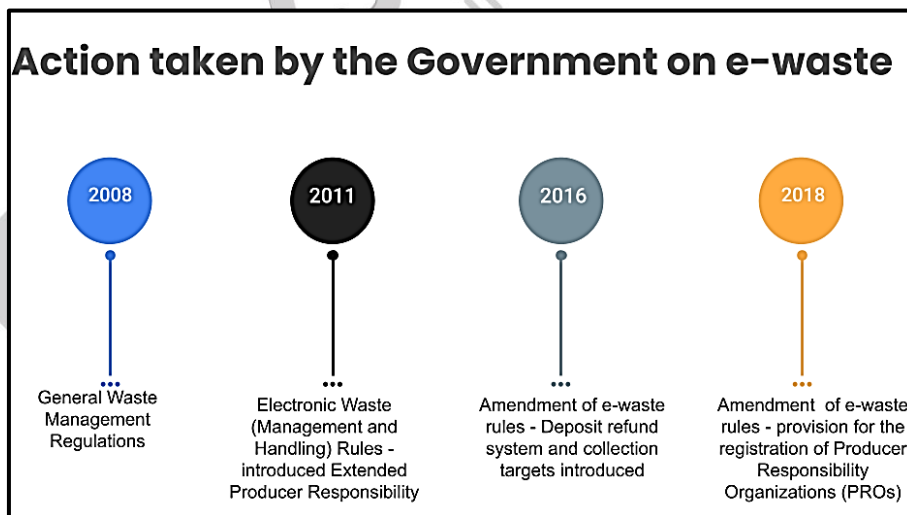
**Note:** In a DRS, an upfront deposit is charged to the consumer at the time of purchase of the product, and the deposit is refunded when the product is safely returned to the producer.

**Amendment of e-waste rules in 2018:**

- The collection targets were set at 10% (from the earlier 30% in 2016) in the first two years, continuing to reach 70% by the end of seven years.
- It also made provision for the registration of Producer Responsibility Organizations (PROs).

**Note:** PROs in India offer comprehensive compliance services, from negotiating the most cost-effective regional collection and recycling contracts with different recyclers to helping producers meet outreach and awareness-raising requirements.

**Action taken by the Government on e-waste**



**Current scenario and issues in e-waste recycling**

- **Implementation issues:** Even though e-waste management policies are in place since 2011 in India, implementation has been sluggish.
- **Informal sector dominance:** As of today, nearly 95% of e-waste is managed by the informal sector which operates under inferior working conditions and relies on crude techniques for dismantling and recycling. This is due to:

**Supply-side issues**

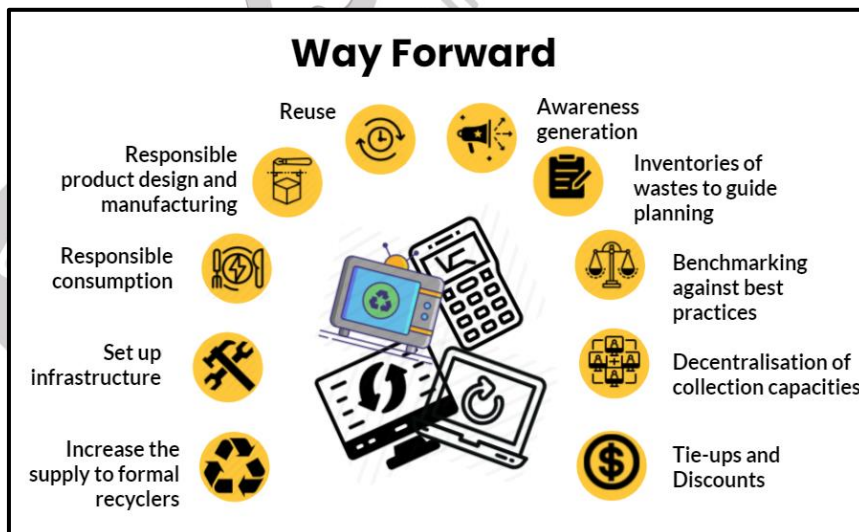
- **Issue of price competencies:**
  - Unlike formal recyclers, informal recyclers have lesser operating costs, no overheads, or other administrative necessities.
  - They hence can offer better prices to the aggregators for the material.
- **Cash payment:**
  - As aggregators are mostly informal, they demand up-front cash payment.
  - Government and multilateral have endeavoured to plug this financial gap through subsidies and monetary support but that has not been a sustainable practice.
- **Network:**
  - The informal network is well-established and rests on social capital ties that PROs have yet to establish.
- **Funds:**
  - The unsteady inflow of new funds from producers to meet their EPR targets.
- **Enforcement:**
  - Missing enforcement, transparency, and traceability of e-waste.
- **Infrastructure:**
  - Lack of sufficient metal processing infrastructure means recyclers have to export materials to global smelters and hence never fully realise the true value of extraction.

**Demand-side issues**

- **Awareness:**

A major constraint is the awareness level of the consumers both in terms of consumption pattern and disposal pattern.

  - **Consumption:** Modern societies have become resource-intensive in their consumption, considerably bringing down the life cycle of electronic products. Also, the life span of devices is getting shorter with the rapid pace of technological advancements
  - **Disposal:** With inadequate repair options or awareness about deposit refund policies, consumers tend to dispose of electronic goods along with other household waste, thus products entering the informal market.



**Conclusion**

Since India is highly deficient in precious mineral resources, there is a need for a well-designed, robust and regulated e-waste recovery regime that would generate jobs and wealth. Concerted efforts are important to generate a momentum of sustained efforts towards increasing disposal through formal channels and catalyzing sustainable consumption patterns.



### 3. Smart Agriculture

#### Context

- With agricultural output being utilised as an important input for various industries, including retail and e-commerce, the importance of agriculture and improving yields becomes all the more pressing. In this context, smart agriculture can be a significant driver of agricultural productivity.

#### Key issues in the agriculture sector

- **Low yield:** The yields on cereal crops are about 50 per cent lower in India than in countries like the United States or China.
- **Size of holdings:** The average size of farm holdings in the country is just over 1 hectare, with small and marginal farmers holding nearly 86 per cent of the total.
  - Smallholders find it particularly difficult to invest in expensive technologies and other inputs that would improve efficiency.
- **Intermediaries:** The existence of a large number of intermediaries across the value chain increases inefficiencies.
- **Others:** Poor access to credit and technology, limited sales channels, and lack of digital infrastructure has inhibited agricultural potential.

#### Agritech as a solution

##### What is agritech?

- Agritech is defined here as technologies and tools that improve yield, efficiency and profitability by leveraging the Internet of Things, Big data, Artificial Intelligence, Machine Learning, Drones, and sensors to track, monitor, automate and analyse agricultural processes.

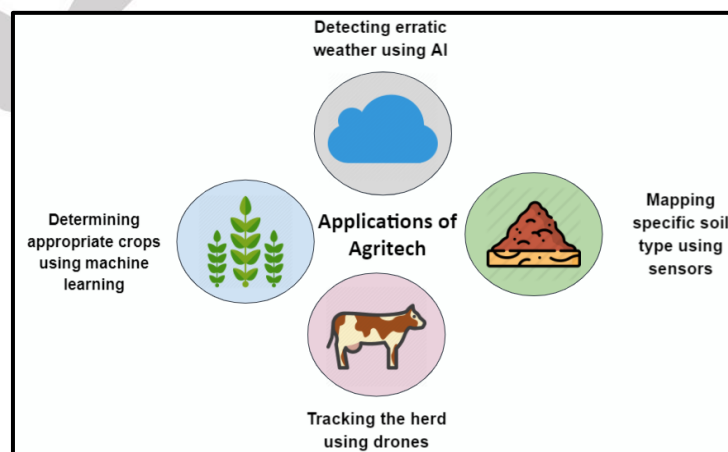
##### The objective of agritech:

- The rationale behind the use of such emerging technologies is to minimise the impact of the 'unknowns' of agriculture like weather, soil and climatic conditions.

##### How does it work?

##### Agritech can help in:

- **Detecting erratic weather:** Using predictive technologies.
- **Mapping the specific type of climate and soil in an area:** By using sensors.
- **Determining the appropriate crops for a field:** By machine learning algorithms using the data from sensors.
- **Monitoring the health and nutrition of cattle and tracking of herds:** Using sensors and drones respectively.



This can substantially improve the quality and quantity of yield.

## Initiatives on Smart Agriculture

### Central Government initiatives

- **Soil Health Cards (2015-2017):** provides crop-specific recommendations for fertilizers and nutrients, every two years.
- **Soil Health Card Mobile App (2017):** captures GIS coordinates while registering sample details to indicate the location of the sample.
- **Direct Benefit Transfer:** Around 14 schemes in agriculture and 2 in animal husbandry have been rolled out using DBT.
- **National Agriculture Market - eNam (2016):** electronic trading Portal connecting APMC mandis. It incorporates 1,000 markets with over 90 commodities.

### State government initiatives

- **Karnataka:**
  - Agritech fund of USD 2.5 million using AI.
  - Partnership with IBM to price forecasting using AI and ML.
- **Madhya Pradesh:** Set up the UN-ICRISAT (United Nations - International Crops Research Institute for the Semi-Arid Tropics) agency to assist with climate-smart agriculture solutions.
- **Uttar Pradesh:** Bill and Melinda Gates Foundation and TATA Trusts collaborated with the State government to set up an Indian Agriculture Incubation Network at IIT Kanpur.
- **Telangana:** Open Data Portal, containing 199 datasets including agriculture, irrigation, and animal husbandry and livestock.
- **Punjab:** Collaboration with Israeli farming solutions organization, ARNA, which provided affordable technical skill training to farmers to boost crop yield, income, and diversify crops.
- **Rajasthan:** Hosted Agri-meets, and a Challenge for Change platform for Agritech entrepreneurs.

### Contribution by other stakeholders:

- Acting as the link between farmers, wholesalers, retailers, and consumers, many startups have been improving market linkages.
- There are over 500 agritech startups in the country, notable among which include Fasal, DeHaat, Clover, CropIn and Intello Labs.

### Challenges for the uptake of smart technologies

- **Issuing of blanket solutions:** Issuing of blanket solutions as opposed to localised recommendations that are sensitive to geographical, socio-cultural, and demographic requirements.
- **Fragmented and unorganised structure of agriculture:** This involves multiple levels of intermediaries.
- **Hesitation of smallholders:** Hesitation of smallholders to undertake technologies that would not be commercially viable and cost-efficient initially.
- **Pace of adoption and penetration of technology:** It is a slow process that diminishes investor interest.
- **Lack of synergy:** Lack of synergy between the various advisories and their disconnect from on-ground situations.

### Way forward

#### The process of unleashing the true potential of agritech in the country would involve:

- **Synergy:** Developing a synergistic relationship between the various stakeholders in the process
- **R&D:** Enhancing investment and R&D to constantly improve and update solutions
- **Enhanced ecosystem:** Improving the regulatory environment to ease the accessibility of startups and other companies to create a robust ecosystem.

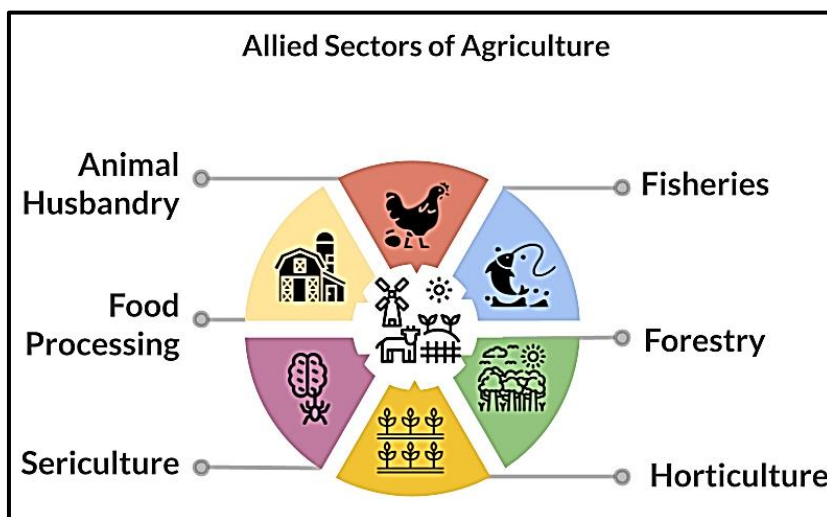
## 4. Taking Allied Sector to Newer Heights

### Context

- As agriculture and the sectors interlinked with it provide a livelihood to more than half of India's population, the Government of India, in its bid to double farmers' income, has launched several schemes which will benefit the farmers and the workforce in the allied sectors.

### About Allied Sector

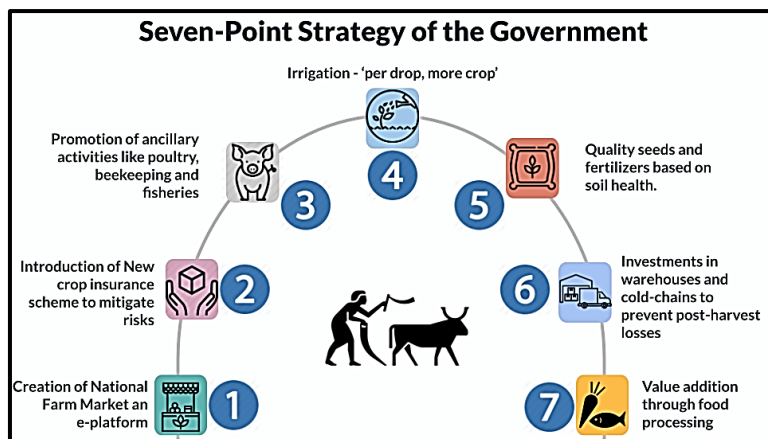
- The sectors interlinked with agriculture such as fisheries, forestry, horticulture, sericulture, food processing and animal husbandry are known as allied sectors.



- According to the Economic Survey 2019-20, the share of agriculture and allied sectors in Gross Value Added (GVA) of the country at current prices is 17.8 percent for the year 2019-20 and it clocked a growth of 3.4 percent at constant prices during 2020-21.

### The Strategy of the Government

- The government has advocated a seven-point strategy for the improvement of the allied sector. It includes:
  - Irrigation:** Special focus on irrigation with the aim of "Per Drop, More Crop";
  - Seeds and fertilizers:** Provision of quality seeds and nutrients based on soil health of each field;
  - Warehouses and cold-chains:** Large investments in Warehousing and Cold Chains to prevent post-harvest crop losses;
  - Food processing:** Promotion of value addition through food processing;
  - Marketing:** Creation of a National Farm Market, removing distortions and e-platform across 585 Stations;
  - Insurance:** Introduction of a New Crop Insurance Scheme to mitigate risks at an affordable cost;
  - Ancillary activities:** Promotion of ancillary activities like poultry, beekeeping and fisheries.



**Status of various allied sectors and the related schemes**

**Horticulture**

- The cultivation of gardens or orchards leading to the cultivation of fruit, vegetables, flowers and ornamental plants is known as horticulture.
- **Share in the agriculture sector:** Indian Horticulture sector contributes 33 percent share of the total value of output in the agriculture sector making a very significant contribution to the Indian economy.
- **Benefits of the sector:** Apart from ensuring the nutritional security of the nation, it provides alternate rural employment opportunities, diversification in farm activities, and enhanced income to farmers.
- **Produce and productivity:**
  - The productivity of horticulture in India has increased from 8.8 tonnes per hectare in 2001-02 to **12.3 tonnes per hectare** in 2018-19.
  - India is currently producing about **306.82 million tonnes** of horticulture produce, which has surpassed the foodgrain production which is 284.83 million tonnes.
- **Dominance in the sector:**
  - India is the second-largest producer of fruits and vegetables in the world and has emerged as a world leader in the production of a variety of fruits like mango and banana.
  - India has maintained its dominance in the production of spices, coconut and cashew nuts.
- **New developments:**
  - New crops like kiwi, gherkins, kinnow, date palm and oil palm have been successfully introduced for commercial cultivation in the country.

**Mission for Integrated Development of Horticulture (MIDH)**

- MIDH is a Centrally Sponsored Scheme (CSS) for the holistic growth of the horticulture sector in India.
- The Government of India (GoI) contributes 60 percent of the total outlay for developmental programmes in all the states except states in the North East and the Himalayas, and State Governments contribute the remaining 40 percent.
- In the case of the North-Eastern States and the Himalayan States, GoI contributes 90 percent.

**Food processing sector**

- The food processing sector is involved in enhancing the shelf life of food along with making it more digestible and nutritious.
- **Segments under the food processing sector:**  
**As per the Ministry of Food Processing following segments come within the food processing industry:**
  - Dairy, fruits and vegetable processing,
  - Grain processing,
  - Fisheries, meat and poultry processing,
  - Consumer foods that include packaged foods, beverages and packaged drinking water.

- **Contribution of the sector:**
  - The food processing industry in India accounts for 32 percent of the country's total food market, one of the largest industries in India.
  - It contributes around 8.80 percent and 8.39 percent of GVA in Manufacturing and Agriculture respectively.
  - It also contributes to 13 percent of India's exports and 6 percent of total industrial investment.
- **Potential of the sector:**
  - The food sector in India has emerged as a high-growth and high-profit sector due to its immense potential for value addition, particularly in the industry of food processing.
  - The gourmet food market of India is currently valued at 1.3 billion USD and is growing at a CAGR (Compound Annual Growth Rate) of 20 percent.

### **Pradhan Mantri Kisan SAMPADA Yojana**

- The main objectives of Pradhan Mantri Kisan SAMPADA Yojana are
  - The creation of food processing and preservation capacities
  - Modernisation/expansion of existing food processing units - with a view to increasing the level of processing and value addition leading to reduction of wastage of food.
- Under PMKSY, 32 projects have been sanctioned which are spread across almost 17 states.
- Following schemes/initiatives are to be implemented under PMKSY:
  - Mega Food Parks,
  - Integrated Cold Chain and Value Addition Infrastructure,
  - Expansion of Food Processing Capacities (Unit Scheme),
  - Infrastructure for Agro-processing Clusters,
  - Creation of Backward and Forward Linkages,
  - Food Safety and Quality Assurance Infrastructure
  - Development of Human Resources and Institutions.
- It is expected to draw an investment of Rs. 31,400 crore for the handling of 334 lakh MT agro-produce which is valued at Rs. 1.04 lakh crore rupees, benefiting 20 lakh farmers and generating 5.3 lakh direct/indirect employment in the country through the year 2019-20.

### **Animal Husbandry**

Animal husbandry deals with the agricultural practice of breeding and raising livestock - cows, pigs, goats, chicken etc.

- **Contribution to the economy:**
  - The annual contribution of the livestock sector in total GDP is nearly 4.5% at current prices during 2015-16 and contributes 25.6% of total Agriculture GDP.
  - It also provides employment to about 8.8 % of the population in India.
- **Dominance:** India is the world's highest livestock owner at about 535.78 million. It also ranks -
  - First in the total buffalo population in the world - 109.85 million buffaloes
  - Second in the population of goats - 148.88 million goats
  - Second largest poultry market in the world
- **Products of animal husbandry:** The products obtained from animal husbandry include broiler meat, eggs, buffalo meat, sheep/goat meat, pig meat, wool, animal skin, etc.
- **Benefits of the sector:** In addition to nutritional security, social security and additional income to the farmers, the Animal Husbandry sector also provides huge self-employment opportunities.

### **Rashtriya Gokul Mission**

- The mission was initiated by the Government of India in December 2014 with the aim of
  - Development and conservation of indigenous bovine breeds,
  - Genetic upgradation of bovine population
  - Enhancing milk production and productivity of bovines
    - Thereby making milk production more remunerative to the farmers.

- It also seeks to upgrade nondescript cattle using elite indigenous breeds like Gir, Sahiwal, Rathi, Deoni, Tharparkar, Red Sindhi.
- As digital support to the mission, the government has launched an app named e-Gopala that helps farmers to choose better quality livestock and get freedom from middlemen. It gives all the information related to cattle care - from productivity to its health and diet.

#### Other initiatives

- **Animal Husbandry Infrastructure Development Fund:** The government has also set up 15,000 crore rupees Animal Husbandry Infrastructure Development Fund under Atma Nirbhar Bharat Abhiyan. It aims to support the private investment of dairy processing, value addition and cattle feed infrastructure.
- **Nationwide Artificial Insemination Programme**
- **Concessional Credit:** The government has included animal husbandry and dairying farmers in its special drive to provide concessional credit to PM-KISAN beneficiaries through Kisan Credit Cards.
- **Disease Control:** National Animal Disease control programme worth 13,343 crore rupees has also been announced for 100 percent vaccination of cattle, buffalo, sheep, goat and pigs totalling 53 crore animals

#### Fishing sector

The fishery is the enterprise of raising or harvesting fish and other aquatic life.

- **Contribution to the economy:** The GVA of the fisheries sector in the national economy during 2018-19 constituted 1.24 percent of the total National GVA and 7.28 percent share of Agricultural GVA.
- **Production:** India contributes 7.73 percent of global fish production and has attained the status of the 2<sup>nd</sup> largest aquaculture and 4<sup>th</sup> largest fish exporting nation in the world.
- **Growth:**
  - The sector recorded an Average Annual Growth Rate of 10.88 percent during 2014-15 to 2018-19.
  - It has recorded 9.71 percent average annual growth in export earnings, with an 18 percent share in agricultural exports.

#### Pradhan Mantri Matsya Sampada Yojana (PMMSY)

- PMMSY was launched as a 20,050 crore rupees scheme to boost production and exports in the fisheries sector as part of the government's aim to double farmers' income.
- It aims to enhance fish production in India by an additional 70 lakh tonne by 2024-25 and increase fisheries export earnings to 1 lakh crore rupees by 2024-25.
- PMMSY is designed to address critical gaps in:
  - Fish production and productivity,
  - Quality,
  - Technology,
  - Post-harvest infrastructure and management,
  - Modernization and strengthening of the value chain,
  - Traceability,and establish a robust fisheries management framework and promote fishers' welfare.
- About 42 percent of the total estimated investment is earmarked for the creation and upgradation of fisheries infrastructure facilities.

#### Sericulture

Sericulture refers to the mass-scale rearing of silkworms in order to obtain silk for weaving into clothes.

- **Contribution to the economy:**
  - The Indian sericulture market was worth INR 266 Billion in 2019.
  - The Sericulture industry also provides employment to approximately 8.25 million persons in rural and semi-urban areas in India (as of 2015-16).

- **Varieties of silk:** Among the four varieties of silk produced in India in 2015-16, Mulberry accounts for 71.8%, Tasar 9.9%, Eri 17.8% and Muga 0.6% of the total raw silk production of 28,472 MT.
- **Dominance:** Silk is part of only 0.2 percent of total textile production in the world and India ranks as the 2<sup>nd</sup> major raw silk producer in the world and is the largest consumer of raw silk and silk fabrics.
- **Growth:** The demand for superior quality bivoltine silk is increasing in India for domestic consumption as well as value-added silk products for the export market.

### Silk Samagra

- The Government of India (through the Central Silk Board) has been implementing a Central Sector Scheme "Silk Samagra" - an Integrated Scheme for Development of Silk Industry (ISDSI) during the year 2017-20.
- The scheme aims to scale up the production of silk by improving the quality and productivity and empower downtrodden and backward families through various activities of sericulture in the country.
- It comprises four major components:
  - Research and Development (R&D), Training, Transfer of Technology and I.T. Initiatives,
  - Seed Organisations,
  - Coordination and Market Development and
  - Quality Certification Systems / Export Brand Promotion and Technology Up-gradation.
- Apart from the Silk Samagra scheme, the Ministry of Textiles, Government of India through the Central Silk Board has taken various steps to promote sericulture including Sericulture projects under North East Region Textile Promotion Scheme, Research and Development to evolve productive silkworm/host plant hybrids, the establishment of Automatic Reeling Machines, Mobilisation of additional funds through the convergence of schemes (Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), Rashtriya Krishi Vikas Yojana (RKVY), levying of basic customs duty of 10 percent and 20 percent on raw silk and silk fabric import respectively and anti-dumping duty on Mulberry raw silk exported from or originating in China.

### Conclusion

- Half of the population which is out of allied sectors as well as a large portion of the country's economy depends on the growth and prosperity of the allied sector. The various schemes by the government are thus aimed at strengthening the population associated with agriculture and the allied sectors.

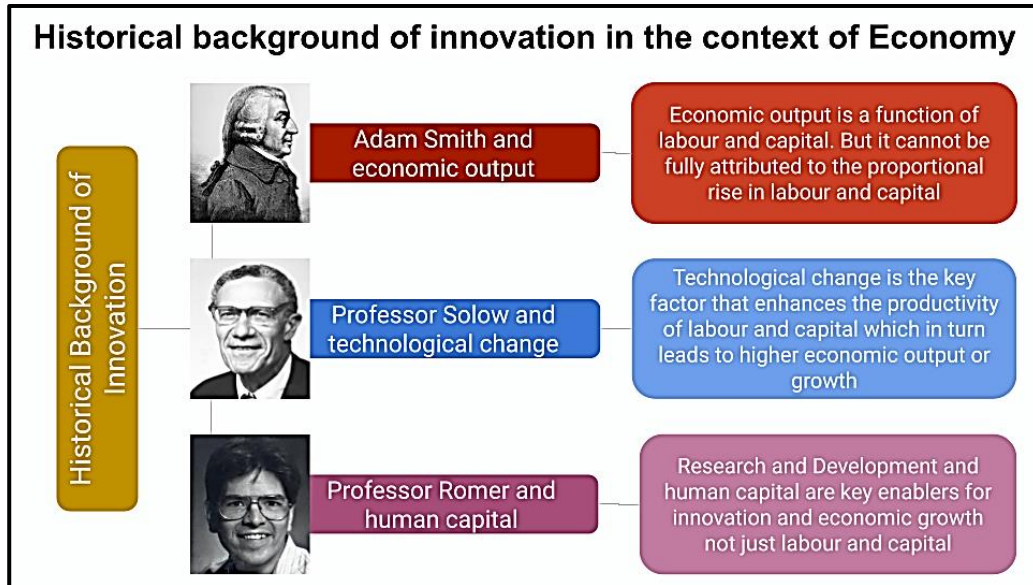
**5. Innovation: Key towards Making Youth and Women Empowered**

**Context**

- India’s demographic dividend, with the majority of the population in the working-age group and the unresolved issues of women empowerment call for innovation as a key solution to provide a sustainable development path.

**What is Innovation?**

- Simply put, innovation is a process for finding solutions to make life easier.
- It is a multi-sector approach wherein the symbiotic relationship across sectors, results in the improvement of living standards.



**Enablers of Innovation - the innovation ecosystem**

- Innovation is catalysed through an innovative ecosystem that provides the environment for innovation and technological advancement.
- The innovation ecosystem runs on material capital and human capital - while material capital is the infrastructural support, human capital is the talent pool that is deployed.

**Innovation and disruption**

- Innovation creates short term disruptions which are initially discouraging since they challenge the existing system
- However, the long term benefits of such disruption are unprecedented - cost and time reduction results in improved business efficiency.



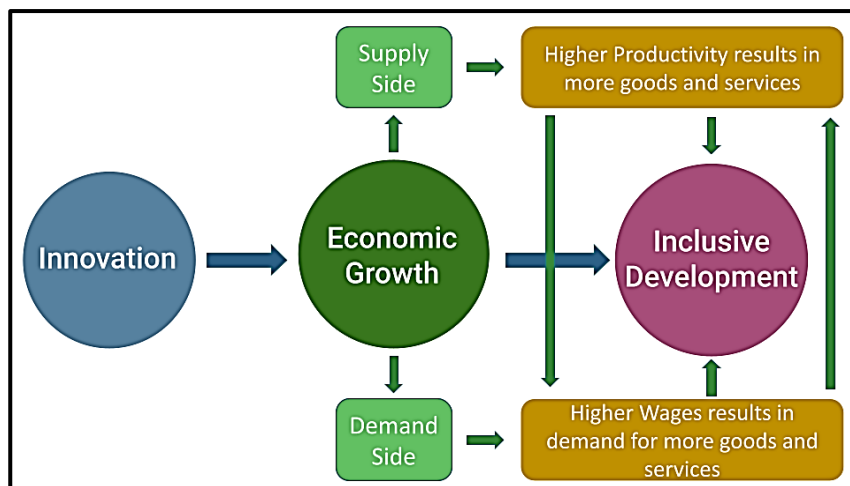


Figure: Innovation driving economic growth and inclusive development

### India and Innovation

- **Global performance:** India has occupied the **48<sup>th</sup> position** and is among the list of 50 most innovative countries as per the Global Innovation Index 2020 (GII 2020), released recently by the World Intellectual Property Organisation (WIPO).

**Note:** GI provides a detailed analysis of the innovation performance of 131 countries based on 80 major parameters.

Performance of India in Global Innovation Index 2020 (GII 2020), released by the World Intellectual Property Organisation (WIPO)

48th Rank in GII 2020	Leading achiever in the Central and Southern Asian region	Consistent improvement in last 5 years
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%; border: 1px solid black; padding: 10px;"> <h3 style="color: green; text-align: center;">Areas of Strength</h3> <ul style="list-style-type: none"> <li>27th Rank in Knowledge and technology outputs and 31st Rank in Market Sophistication.</li> <li>21st Rank in quality scientific publications and 22nd Rank in quality of universities.</li> <li>31st Rank in Brand value of enterprises globally.</li> <li>6 of top 100 most entrepreneurial cities in world are in India.</li> </ul> </div> <div style="width: 45%; border: 1px solid black; padding: 10px;"> <h3 style="color: red; text-align: center;">Areas of Weakness</h3> <ul style="list-style-type: none"> <li>75th rank in infrastructure.</li> <li>Only 0.7% of GDP spent on R&amp;D. Very low compared to advanced economies.</li> <li>56% spent by government and only 37% by private sector.</li> <li>Only 156 researchers per million population are in India. Abysmally low compared to major economies.</li> </ul> </div> </div>		

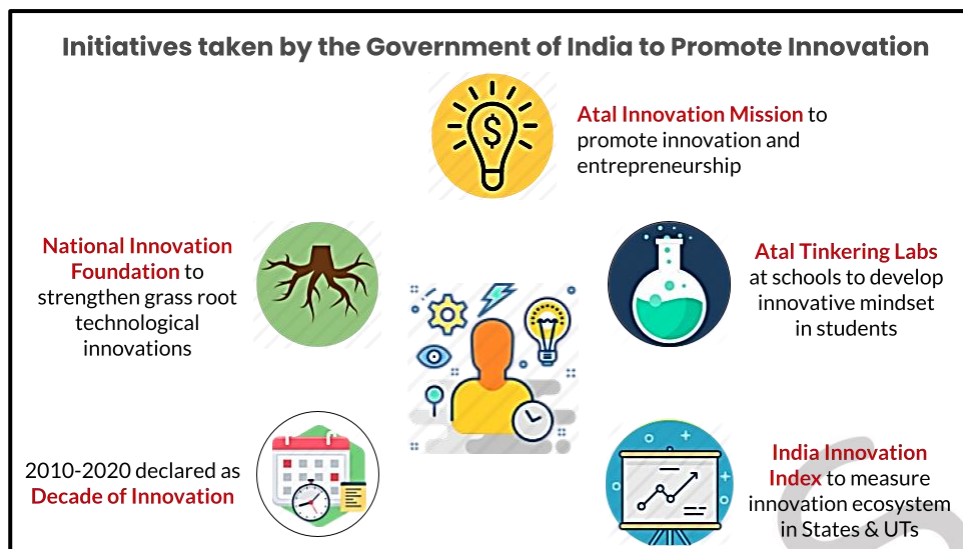
### Innovation and Youth

- **Demographic dividend:**
  - India has one of the youngest populations in the world with a majority in the working-age group and its demographic dividend is expected to continue till 2055-56.
  - This is a great advantage as historically, it is seen that demographic dividend contributed up to 15 per cent of the overall growth in major economies.

- **Challenge of harvesting the dividend:**
  - In order to reap the dividend, it is important to ensure gainful employment opportunities for the youth and prevent jobless growth.
  - And for this, it is imperative to explore and open up other avenues for employment which is only possible with innovation.
- **Innovation as the solution:**
  - **Education and skills:** Innovation can help improve education, prepare youth with the skill sets to find employment in a knowledge-based economy and provide career opportunities across sectors.
  - **Business and entrepreneurship:** Innovation also plays an active role in providing promising careers in business and entrepreneurship for common people, especially for youth.
    - **New business models:** Innovative tools, especially mobile technologies, digital innovations, fintech has helped to develop entirely new business models.
    - **Enhanced marketing:** ICT innovation in the form of digital marketing further helps to connect local manufacturers with global markets and enhance the export potential.
    - **Finance:** Innovation in the form of financial technology has been instrumental in providing easy access to finance for budding entrepreneurs.

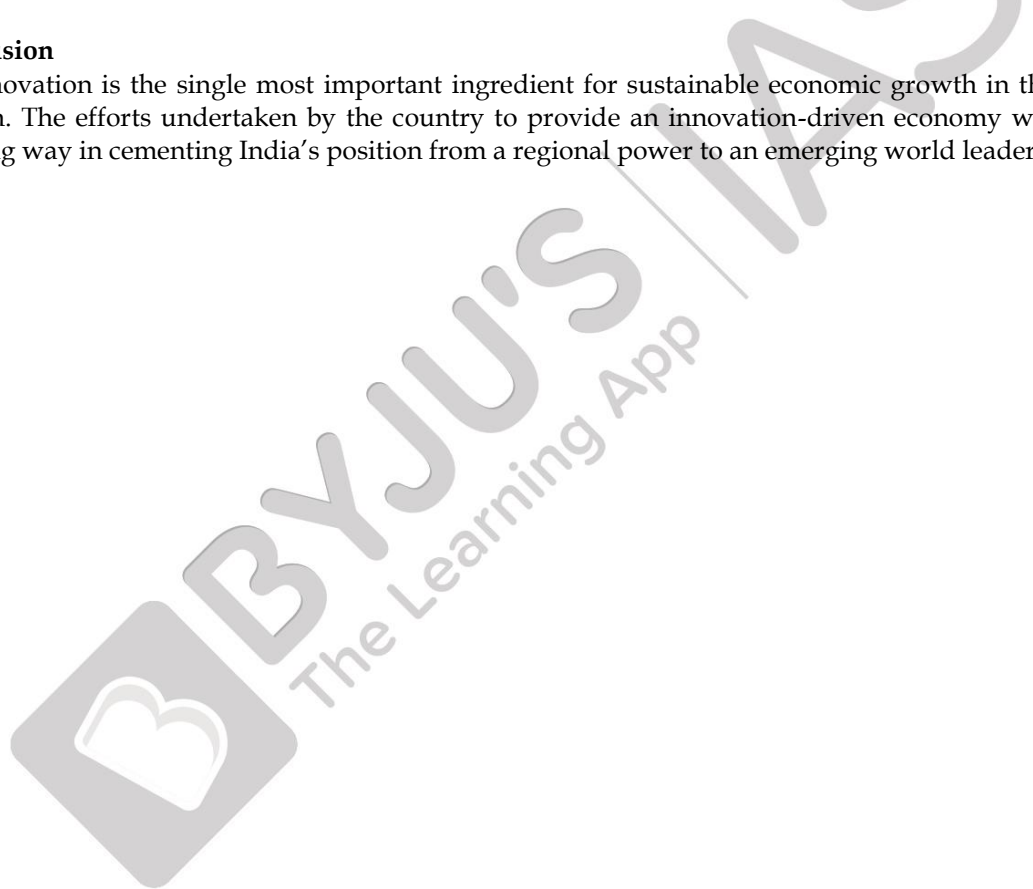
### **Innovation and Women Empowerment**

- **Women empowerment and economic growth:**
  - As per United Nations, achieving gender equality in India can contribute an additional USD 700 billion to the GDP by the year 2025.
  - The IMF has also estimated that equal participation of women in the labour force will increase India's GDP by 27 per cent.
- **The current state of women in India:**
  - In Global Gender Gap Index 2021, India has secured an overall rank of 140 out of 156 countries.
    - In the economic participation and opportunity parameter, India's rank is 151 and in the health and survival parameter, India stands at 155.  
**Note:** In 2006, India's overall rank in the same index was 98 and in 2020, India's rank was 112.
  - More than 50 per cent of India's female population do not have cell phones, and 80 per cent don't have internet connectivity in their cell phones.
- **The power of innovation in the emancipation of women**
  - **New ideas:**
    - Innovation through the emancipation of new ideas, newer products and practices is a powerful force that brings in social change.
  - **Indirect impact:**
    - As new innovations take place, new players come into the global domain with their multifaceted but different approaches. Their individual approaches might not be woman-centric but nonetheless, women empowerment gets addressed by the linkages they happen to create.
    - A striking example is the introduction of cell phones and their penetration in the rural economy and the positive impact it has had on social attitudes and opportunities for education and financial inclusion of women.



**Conclusion**

- Innovation is the single most important ingredient for sustainable economic growth in the long run. The efforts undertaken by the country to provide an innovation-driven economy will go a long way in cementing India's position from a regional power to an emerging world leader.



**6. Objective Questions**

1. The Alma-Ata Declaration of 1978 is related to which of the following?
  - (a) Public health
  - (b) Marine Environment
  - (c) Nuclear weapons
  - (d) Hazardous Substances

**Answer: (a)**

**Explanation:**

The Alma-Ata Declaration of 1978 was a major milestone of the 20th century in the field of public health. It identified primary health care as the key to the attainment of the goal of Health for All.

2. The Global E-waste Monitor report is published by which of the following organizations?
  - (a) e-Stewards
  - (b) Global E-waste Statistics Partnership (GESP)
  - (c) World Economic Forum (WEF)
  - (d) Global Partnership on Waste Management (GPWM)

**Answer: (b)**

**Explanation:**

Global E-waste Monitor report is a collaborative product of the Global E-waste Statistics Partnership (GESP), formed by UN University (UNU), the International Telecommunication Union (ITU), and the International Solid Waste Association (ISWA), in close collaboration with the UN Environment Programme (UNEP).

3. Consider the following technologies:
  1. Internet of Things
  2. Big data
  3. Artificial intelligence
  4. Machine learning
 Which of the above can improve agricultural productivity?
  - (a) 1 and 2 only
  - (b) 2 and 3 only
  - (c) 2, 3 and 4 only
  - (d) 1, 2, 3 and 4

**Answer: (d)**

**Explanation:**

Technologies and tools that can help improve agricultural crop yield, efficiency and profitability include the Internet of Things, Big data, Artificial Intelligence, Machine Learning, Drones, and sensors that can track, monitor, automate and analyse the agricultural processes.

4. Which of the following countries is the leading producer of mango in the world?
  - (a) China
  - (b) India
  - (c) Bangladesh
  - (d) Vietnam

**Answer: (b)**

**Explanation:**

India is the leading producer of tropical fruits like mango and banana.

5. The Global Innovation Index is released by which of the following organizations?
  - (a) United Nations Conference on Trade and Development (UNCTAD)
  - (b) World Trade Organisation (WTO)
  - (c) World Intellectual Property Organization (WIPO)
  - (d) World Economic Forum (WEF)

**Answer: (c)**

**Explanation:**

The Global Innovation Index is released by the World Intellectual Property Organization (WIPO). It provides detailed metrics about the innovation performance of 131 countries and economies around the world. Its 80 indicators explore a broad vision of innovation, including political environment, education, infrastructure and business sophistication.

## 7. Subjective Questions

1. Analyse the progress of India towards its commitment to achieving Universal Health Care (UHC) coverage by 2030.  
(250 Words, 15 Marks)
2. Analyse the various challenges faced in the efficient management of e-waste in India.  
(150 Words, 10 Marks)
3. What do you understand about the term 'Smart Agriculture'? How can it help improve agricultural productivity and efficiency in India?  
(150 Words, 10 Marks)
4. Discuss the contribution of the allied sector to the Indian economy. Also, discuss the initiatives taken by the Government of India to promote the allied sector.  
(250 Words, 15 Marks)
5. What is 'Innovation'? Explain how innovation plays a key role in the empowerment of women and youth in India.  
(250 Words, 15 Marks)



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Pratibha Verma



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**RANK 08**

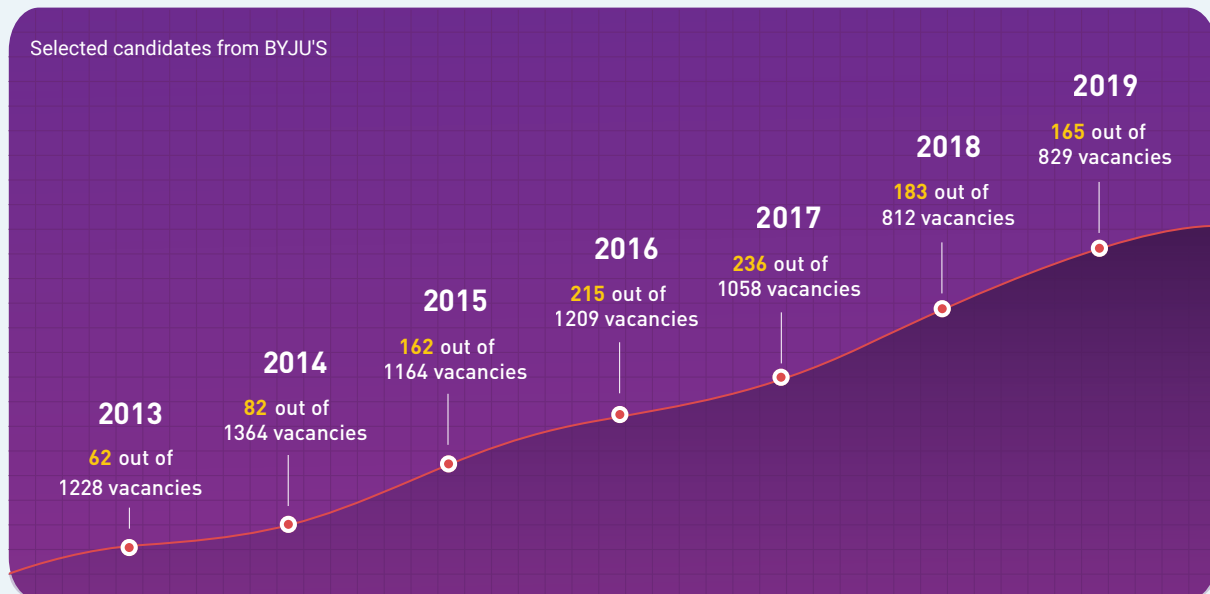
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