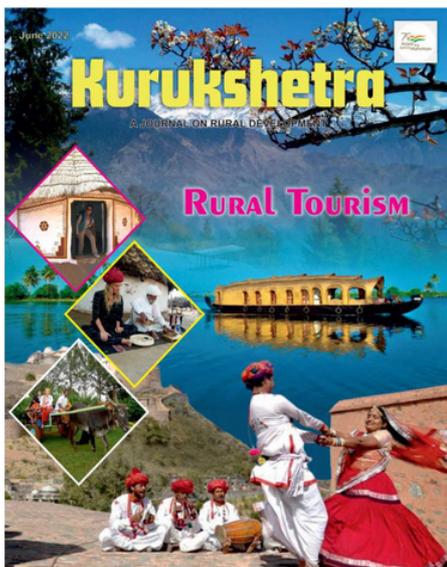


OFFICERS' Pulse

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Contents

1) A direct approach to conservation..	2	14) Sabhas we must Listen to.....	24
2) Soil Degradation in India.....	3	15) Decoding Modern Tech Terms.....	25
3) A new global standard for AI ethics	4	16) Capacity Building Commission	27
4) Bring the shine back on government jobs.....	6	17) Jan Suraksha.....	28
5) Bringing MSMEs into global value chains.....	7	18) NFT Explained.....	30
6) Malnutrition in India is a worry in a modern scenario.....	9	19) Accessible Healthcare to All	31
7) The way to end child marriage	11	20) AI and Machine Learning.....	33
8) Petty patents can boost R&D.....	12	21) Deep-Tech Startup Ecosystem	34
9) Digital India.....	14	22) Rural Tourism: India an Incredible Tourism Destination	36
10) Urbanisation in India	16	23) Digital Currency	38
11) On women's rights, West takes a backward step, and India shows the way.....	19	24) Quality Education	40
12) India's energy needs	22	25) Accelerating Socio-Economic Development	43
13) Springs make Himalayas.....	23	26) A case for community-oriented health services	45
		Model Questions	47

1) A direct approach to conservation

Context

- Incentives for biodiversity protection and sustainable use include biodiversity-relevant taxes, fees, levies, tradable permits, and Payments for Ecosystem Services (PES).
- Through these economic instruments, governments can affect both public and private financing flows for biodiversity.

Payments for Ecosystem Services

- Mobilisation of biodiversity finance through admission fees to natural parks, hunting and fishing permit fees, and the trade-in energy-saving certificates has gained governmental support and political will. **Payments for Ecosystem Services is one way to conserve and increase ecosystem services.**
- Payments for Ecosystem Services is the name given to a variety of arrangements through which the **beneficiaries of environmental services**, from watershed protection and forest conservation to carbon sequestration and landscape beauty, **reward those whose lands provide these services with subsidies or market payments.**
- PES presents a unique scope for incentivising local land stewards to manage threatened ecosystems.
- It has the potential to achieve the dual goals of **conservation and poverty alleviation** towards the achievement of **Sustainable Development Goals.**
- This places PES as one of the pivotal economic instruments for conservation.

Best Practices

- However, PES has not achieved much attention either in the research or policy mandates in the

Indian subcontinent. This is in sharp contrast to the successful implementation of PES in **Latin American and African countries.**

- For instance: In the Western Cape, South Africa, the CapeNature Stewardship Programme protects biodiversity on private lands.
- In terms of raising money, PES programmes such as Costa Rica's Pago Por Servicios and Ecuador's Socio Bosque were among the few to mobilise significant finances.

Methods for Successful Implementation

- Any successful PES programme is one that overcomes the impediments to implementation. Such limitations include a **solid institutional mechanism** capable of simultaneous transfer of funds from buyers to suppliers, **monitoring** through investment in local capacity building, **cost efficiency**, the **scope for development benefits**, and **maintaining the sustainability of funds.**
- A **local monitoring mechanism** is the key to successfully implementing a PES programme.
- A study conducted in the **Kodagu district of Karnataka** to restore native trees that grow in the underlying layer of coffee plantations shows a successfully designed local institutional mechanism for PES implementation.
- A global initiative to mobilise private sector finance to benefit people and the environment would help maintain the funds for PES programmes.

Conclusion

- Promotion of PES programmes would allow India to effectuate the nation's commitments to achieving Sustainable Development Goals and

the Paris Agreement on climate change.

2) Soil Degradation in India

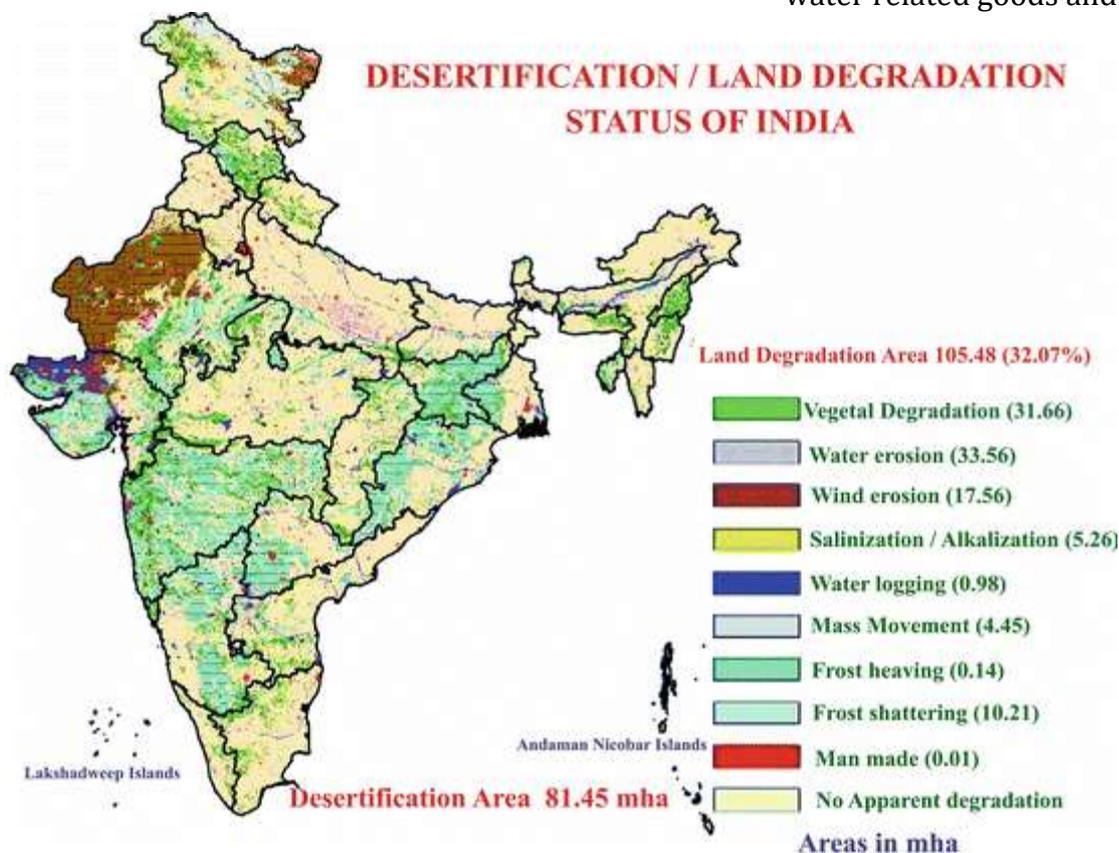
Context

- Vice president of India Venkaiah Naidu recently emphasised the need for agro-ecological practices that create sustainable food production systems.
- A key element of sustainable food production is **healthy soil** because nearly **95 percent of global food production depends on soil**. The

current status of soil health is worrisome.

What is soil degradation?

- Soil degradation is defined as a **change in the soil health status** resulting in a diminished capacity of the ecosystem to provide goods and services for its beneficiaries.
- **Land degradation** has a wider scope than both soil erosion and soil degradation in that it covers all negative changes in the capacity of the ecosystem to provide goods and services (including biological and water related goods and services).



How did the soil degradation happen?

- **Extensive use of fertilizers and pesticides** led to the deterioration of soil health and contamination of water bodies and the food chain, which pose serious health risks to people and livestock.
- The **excessive or inappropriate use of agrochemicals** is one cause of the problem. The global annual production of industrial chemicals has doubled since the beginning of

the 21st century, to approximately 2.3 billion tonnes, and is projected to increase by 85 per cent by the end of the decade.

- Another challenge comes from **salinization** (accumulation of soluble salts of sodium, magnesium and calcium in soil to the extent that soil fertility is severely reduced), which affects 160 million hectares of cropland worldwide.

Effects of soil degradation on food production

- Soil degradation on an unprecedented scale is a significant challenge to sustainable food production.
- About **one-third of the earth's soils is already degraded and alarmingly, about 90 per cent could be degraded by 2050 if no corrective action is taken.**
- Globally, the bio-physical status of 5,670 million hectares of land is declining, of which 1,660 million hectares **(29 percent) is attributed to human-induced land degradation**, according to the **Food and Agriculture Organisation's 'State of Land, Soil and Water' report.**

Way Forward

- **Collective global action** involving governments and civil society is crucial to arrest soil and land degradation.
- Governments should promote **adoption of innovative policies and agro-ecological practices** that create healthy and sustainable food production systems.
- **Soil Health Cards**, which provide information to farmers on nutrient status of their soil, have been distributed to about 23 crore farmers. The scheme has not only helped in improving the health of the soil, but has also benefited innumerable farmers by increasing crop production and their incomes. Loopholes in its implementation must be rectified.
- Several studies have established that **natural farming and organic farming** are not only cost-effective but also lead to improvement in soil health and the farmland ecosystem.

3) A new global standard for AI ethics

Context

- Artificial intelligence (AI) is more present in our lives than ever. From predicting what we want to see as we scroll through social media to helping us understand weather patterns to manage agriculture, AI is ubiquitous.
- AI algorithms can also be partially credited for the rapidity with which **vaccines were developed to tackle COVID-19.**
- The algorithms crunched complex data from clinical trials being undertaken in all corners of the world, creating global collaborations that could not have been imagined even a decade ago.

Issues in AI

- The data used to feed into AI **often aren't representative of the diversity of our societies, producing outcomes that can be said to be biased or discriminatory.** For instance, while **India and China together** constitute approximately a **third of the world's population**, they form **just 3% of images used in ImageNet**, a widely used dataset.
- There are **problems emerging in facial recognition technologies**, which are used to access our phones, bank accounts and apartments, and are increasingly employed by law-enforcement authorities, **in identifying women and darker-skinned people.**
- For three such programs released by major technology companies, the **error rate was 1% for light-skinned men, but 19% for dark-skinned men, and up to 35% for dark-skinned women.** Biases in facial recognition technologies have led to **wrongful arrests.**

AI in India

- India is one of the world's largest markets for AI-related technologies, valued at over \$7.8 billion in 2021.
- Indeed, the **National Strategy on Artificial Intelligence** released by **NITI Aayog in 2018** highlights the massive potential of AI in solving complex social challenges faced by Indian citizens across areas such as **agriculture, health, and education**, in addition to the significant economic returns that AI-related technologies are already creating.
- To ensure that the full potential of these technologies is reached, the right incentives for **ethical AI governance** need to be established in national and sub-national policy.
- India has made great strides in the development of responsible and ethical AI governance, starting with **NITI Aayog's #AIForAll campaign** to the many corporate strategies that have been adopted to ensure that AI is developed with common, humanistic values at its core.
- This means they must use **affirmative action to make sure that women and minority groups are fairly represented on AI design teams.**
- This could take the form of **quota systems** that ensure that these teams are diverse or the form of dedicated funds from their public budgets to support such inclusion programmes.
- The Recommendation also underscores the importance of the **proper management of data, privacy and access to information.**
- It establishes the **need to keep control over data in the hands of users**, allowing them to access and delete information as needed.
- Additionally, the **broader socio-cultural impacts** of AI-related technologies are also addressed, with the Recommendation taking a strong stance that **AI systems should not be used for social scoring or mass surveillance purposes.**

UNESCO's Recommendation on the Ethics of Artificial Intelligence

- Last November, **193 countries** (including **India**) reached a **groundbreaking agreement** at **UNESCO** on how AI should be designed and used by governments and tech companies.
- UNESCO's **Recommendation on the Ethics of Artificial Intelligence** aims to fundamentally shift the balance of power between people, and the businesses and governments developing AI.
- Countries which are members of UNESCO have agreed to implement this Recommendation by enacting **actions to regulate the entire AI system life cycle**, ranging from research, design and development to deployment and use.

A Common Rulebook

- The new agreement is broad and ambitious. It is a recognition that AI-related technologies cannot continue to operate without a common rulebook.
- Over the coming months and years, the recommendations will serve as a **compass to guide** governments and companies, to voluntarily develop and deploy AI technologies

that conform with the commonly agreed principles it establishes.

- It is hoped that governments will themselves use the recommendations as a framework to establish and update legislation, regulatory frameworks, and policy to embed humanistic principles in enforceable accountability mechanisms.

Conclusion

- This agreement is an important milestone to use AI in areas where it can have the most impact: **hunger, environmental crises, inequalities and pandemics.**

4) Bring the shine back on government jobs

Context

- In May 2022, Haryana terminated the services of over 2,000 contractual health workers (nurses, sweepers, security guards, paramedical staff) who had been hired during the pandemic.

Huge Vacancies

- Vacancies in the government are **not being filled at a sufficient pace.**
- There were over **60 lakh vacancies** in the government across all levels in July 2021.
- Of these, over 9.1 lakh were in the Central government, while about 2 lakh vacancies were in PSU banks. Additionally, there were over 5.3 lakh vacancies in the State police, while primary schools were estimated to have some 8.3 lakh vacancies.

Contractual Nature

- In **2014**, about **43% of government employees** (about 12.3 million) had **non-permanent or contractual jobs**, with about 6.9 million working in key flagship welfare schemes (Anganwadi workers, for instance) with **low**

wages and little, if any, social security cover, as per the Indian Staffing Industry Research 2014 report. By **2018**, the share of government employees in this category had risen to **59%**.

- Some States have sought to take this further — in 2020, while the pandemic led to mass unemployment, the State government in **Uttar Pradesh** sought to **amend recruitment for Group B and C employees**, with a push for **increasing contractual employment** (for a five-year period), with such employees not offered allowances and typical benefits.
- Post the five-year period, a pathway to regularisation was offered, only if the workers could pass a **rigorous performance appraisal**; if they did not pass, they would be dismissed.
- In **2013**, the **Supreme Court** ruled that a **contractual employee** for a government department was **not a government servant**.

Bolstering Public Services

- For the past few decades, there is **under-investment in public goods** — as witnessed by the COVID-19 crisis, our healthcare system simply does not have the capacity to provide adequate healthcare support to citizens under normal conditions, let alone a pandemic.
- **Expanding public service** provisioning will also lead to the creation of good quality jobs, along with skilled labour, offering us social stability.
- A push for enhancing public health would lead to the **creation of societal assets**; having more ICU beds in the first place would have ensured that the COVID-19 crisis could have been managed better.

- A push for a **universal basic services programme** with **public healthcare** would also help supplement insurance-based models like Ayushman Bharat.
- Such spending, however, will eventually lead to an **increase in consumer demand** and have **strong multiplier effects**, while generally improving the productivity and quality of life in India's cities and villages.

Opportunities Ahead

- There is significant potential for job creation in **rooftop solar power generation, manufacturing of solar panel modules and end-use servicing**.
- Meanwhile, on the **waste management** front, there is significant scope for expanding waste-water treatment capacity, with the building and management of treatment plants for sewer waste and faecal sludge treatment plants leading to generation of jobs.
- Encouraging **solid waste treatment** practices (such as dry waste collection, micro-composting) could create about 300 jobs per year in a city municipal corporation.
- A push for adopting **electric vehicles** and encouraging green mobility would require significant manpower, leading to the generation of '**green jobs**'.

Conclusion

- Public services require more **doctors, teachers, engineers, and fewer data entry clerks**.
- Reforms advocated by the **Administrative Reforms Commission** should be the initial step. This is the time to **build capacity for an efficient civil service** that can meet today's challenges – providing a corruption-free welfare system,

running a modern economy and providing increasingly better public goods.

- Improved public service delivery, through better compensation, should be the ethos of government.

5) Bringing MSMEs into global value chains

Context

- Micro, Small and Medium enterprises (MSME) account for over 99% of businesses in India. It is the **largest employer in India outside of agriculture**, employing over **11.1 crore people, or 45%** of all workers.
- MSMEs are privately owned enterprise with **less than ₹50 crore in investments in plant and machinery and turnover below ₹250 crore**.
- The term MSME itself clubs together a range of businesses as diverse as India itself: from backyard workshops to IT and other technology start-ups with cutting edge technology.

Potential of MSME's

- The potential of India's small businesses is truly immense. India faces a unique moment in history, a potential **demographic dividend of tremendous proportions**.
- To leverage this opportunity, India needs to create many jobs, especially for the one million young people entering the labour market every month.
- The broader benefits of a dynamic MSME sector for the entirety of society includes **more jobs, a broader tax base, increased economic growth, prosperous and productive communities**, in turn expanding domestic markets for goods and services.

Challenges faced by MSME's

- The disruption of the pandemic severely impacted MSMEs, especially those in the services sector.
- Their **small size and lack of access to resources** meant that many were only beginning to mount a fragile recovery just when renewed war, supply shocks and soaring fuel, food and fertilizer prices presented a host of new threats.
- All of this comes against the backdrop of the ongoing **climate crisis**, the greatest disruption multiplier of all.
- Most MSME **do not meet today's standards on productivity, environmental sustainability, and health and safety of workers.**
- This is further exacerbated by the **high degree of informality** in the sector, with many enterprises unregistered, and both employers and workers are **lacking awareness** of and commitment to comply with **labour and environmental laws.**
- As a result, informal enterprises **cannot access formal MSME support and financing nor participate in global value chains** that require full compliance with all applicable regulations.

Facilitation for MSME

- The Government of India has rightly identified the development of the country's MSME ecosystem as a top priority for achieving Atma Nirbhar Bharat (self-reliant India).
- India's ambitious "**Make in India**" **campaign** aims to catapult the country up the manufacturing value chain to position itself as a global manufacturing hub.
- Agencies such as the **United Nations Industrial Development Organization (UNIDO), International Labour**

Organization (ILO), United Nations Development Programme (UNDP), UN Women, International Fund for Agricultural Development (IFAD) and others are working with MSMEs as they navigate a rapidly changing post-pandemic economic landscape.

Digitalisation

- Digitalisation concerns the **integration of digital technologies**, such as big data, artificial intelligence and virtual reality, in business processes, also known as **Industry 4.0.**
- With few exceptions, digitalisation into smart manufacturing operations is still in its infancy.
- Therefore, there is a need for replicable digital solutions adapted for MSMEs, including digital enhancements for machinery and equipment currently in use.
- Government initiatives such as the **Digital Saksham** and the interlinking of the **Udyam, e-Shram, National Career Service (NCS), and Atmanirbhar Skilled Employee-Employer Mapping (ASEEM) portals** show the promise of targeted digitalisation schemes.
 - **Digital Saksham** is a capacity building initiative to create awareness on digitization for MSMEs in the country.
 - **Udyam** is an online system for registering micro, small and medium enterprises launched by the Union MSME Ministry.
 - The Ministry of Labour and Employment launched the **e-shram portal** which aims to register 38 crore unorganised workers.
 - **NCS** is a National ICT based portal to connect the

opportunities with the aspirations of youth and facilitate registration of job seekers, job providers, skill providers, career counsellors, etc.

- The Ministry of Skill Development and Entrepreneurship launched the **ASEEM portal** to help skilled people find sustainable livelihood opportunities. It acts as a directory of skilled workforce.

Reduced Environmental Impacts

- **Greening** (the process in which an organization is becoming more aware of environmental issues) reduces the environmental impact of MSME operations and fosters cleantech innovation and entrepreneurship to accelerate the transition to a circular and low carbon economy.
- **Energy efficiency** provides a case in point as business and climate benefits go hand in hand. For example, together with the **Bureau of Energy Efficiency (BEE)**, **UNIDO** provided **energy efficiency advisory services** to 695 MSMEs in 23 clusters covering brass, ceramic, dairy, foundry and hand tool sectors.
- As a result, these MSMEs invested themselves ₹81 crore in annual operating costs and **prevented 83,000 tonnes of greenhouse gas emissions**.
- **ILO** works in Pune and Ahmedabad to **formalise municipal solid waste management** for clean food, textile and garment value chains in Odisha and Andhra Pradesh.

Job Creation

- The **Prime Minister's Employment Generation Programme (PMEGP)** is also

creating opportunities for self-employment and micro enterprises, with over **7 lakh micro enterprises** assisted in becoming economically viable.

- **PMEGP** is a major credit-linked subsidy programme aimed at assisting first generation entrepreneurs for setting up micro enterprises in the non-farm sector by helping traditional artisans and unemployed youth.
- Similarly, **ILO**, together with the Federation of Indian Chambers of Commerce & Industry (FICCI) and corporates, is supporting MSMEs in **creating and retaining jobs**, with over 150 MSMEs having improved productivity, aligned to international standards and integrated into global supply chains.

Way Forward

- To fully unlock emerging opportunities in the rapidly changing global value chain ecosystem and maximise the demographic dividend, MSME owners need to further commit to formalising their businesses, investing in improved productivity, compliance and most of all, decent work and jobs for India's aspiring youth.
- The compelling vision of **India as a world-class manufacturing and services hub** for the world, moving towards upper middle-income status and achieving the Sustainable Development Goals, can best be achieved with the widespread and transformational uplifting of the MSME segment.

6) Malnutrition in India is a worry in a modern scenario

Context

- Good nutrition has the power to empower the present and future

generations. A **child's nutritional status is directly linked to their mother**. Poor nutrition among pregnant women affects the nutritional status of the child and has a greater chance to affect future generations.

- Undernourished children are at risk of under-performing in studies and have limited job prospects. This **vicious cycle** restrains the development of the country, whose workforce, affected mentally and physically, has reduced work capacity.

Marginal Improvement

- The **National Family Health Survey (NFHS-5)** has shown **marginal improvement in different nutrition indicators**, indicating that the pace of progress is slow.
- While there was some reduction in **stunting rates** (35.5% from 38.4% in NFHS-4) 13 States or Union Territories have seen an increase in stunted children since NFHS-4.
 - Stunting is defined as low height-for-age.
- Malnutrition trends across NFHS surveys show that **wasting**, the most visible and life-threatening form of malnutrition, has either risen or has remained stagnant over the years.
 - Wasting is defined as low weight-for-height.
- India also has the **highest prevalence of anaemia in the world**. The NFHS-5 survey indicates that more than 57% of women (15-49 years) and over 67% children (6-59 months) suffer from anaemia.
 - Anaemia is defined as the condition in which the number of red blood cells or the haemoglobin

concentration within them is lower than normal.

- Anaemia has major consequences in terms of human health and development: it **reduces the work capacity of individuals, in turn impacting the economy and overall national growth**.
- **Developing countries lose up to 4.05% in GDP per annum due to iron deficiency anaemia; India loses up to 1.18% of GDP annually**.
- There is a greater need now to **increase investment in women and children's health and nutrition** to ensure their sustainable development and improved quality of life.

Outcome Oriented Approach

- India must adopt an **outcome-oriented approach on nutrition programmes**.
- It is crucial that parliamentarians begin monitoring needs and interventions in their constituencies and raise awareness on the issues, impact, and solutions to address the challenges at the local level.
- There has to be **direct engagement with nutritionally vulnerable groups** (this includes the elderly, pregnant women, those with special needs and young children), and contribute toward **ensuring last-mile delivery of key nutrition services and interventions**.
- This will ensure **greater awareness** on the one hand and **proper planning and implementation** of programmes at the grass-roots level on the other, which can then be replicated at the district and national levels.
- With **basic education and general awareness**, every individual is informed, takes initiatives at the

personal level and can become an agent of change. Various studies highlight a **strong link between mothers' education and improved access and compliance with nutrition interventions among children.**

Conclusion

- The country's response to malnutrition and its growing anaemia burden should be practical and innovative.
- This is critical to make an India that is malnutrition-free and anaemia-free a reality, and not just an aspiration.

7) The way to end child marriage

Context

- The **Prohibition of Child Marriage (Amendment) Bill**, which seeks to increase the legal age of marriage of women from **18 to 21**, is under consideration of the Parliamentary Standing Committee on Education, Women, Children, Youth and Sports.
- The increase in age of marriage is claimed to bring substantive benefits at the individual and societal levels.

Structural Factors

- Several empirical studies from South Asia establish a significant **association between early marriage and adverse health and educational outcomes of women and their children.**
- Specifically, studies associate early marriage of women with **early pregnancy, lower likelihood of accessing ante-natal care, higher risks of maternal morbidity and mortality, poor nutritional status of women and poor nutritional and educational outcomes of children.**
- Child marriage is abetted by **structural factors**, including **social**

norms, poverty, and women's education. It is because of social norms in many regions and cultures that parents begin preparations for a girl's marriage once she has reached menarche.

- Equally, a large proportion of child marriages take place primarily because of **poverty** and the **burden of the huge costs of dowry** associated with delayed marriages.
- These factors curtail a girl's opportunities to continue her education. And in turn, the **lack of educational opportunities** plays an important role in facilitating child marriage.

NFHS Survey

- NFHS-5 data show that about **25% of women aged 18-29 years married before the legal marriageable age of 18.** The proportion has **declined only marginally from NFHS-4 (28%).**
- Expectedly, the prevalence is **higher in rural** than urban India (28% and 17%, respectively).
- West Bengal has the highest prevalence (42%), followed by Bihar and Tripura (40% each). At the other end of the spectrum are Goa, Himachal Pradesh and Kerala (6% to 7%).

Education Outcomes

- According to the community-wise data, **39% of child marriages** in India take place among **Adivasis and Dalits.**
- The share of **advantaged social groups** is **17%** and the **remaining share is of Other Backward Classes.**
- In terms of household wealth, **58%** of these marriages take place among the **poorest wealth groups (bottom 40%),** about **40%** of them take place among the **middle 50%** and **only 2%** of them take place

among the **top 10%** of wealth groups.

- **Only 4% of child marriages** in India take place among **women who have completed more than 12 years of education.**
- Thus, the data confirm that a **significant proportion of child marriages take place among women with less than 12 years of schooling and households that are socially and economically disadvantaged.**
- While an increase in education is most likely to delay marriage, the increase in age at marriage may or may not increase women's education.

Marriage and Nutritional Outcomes

- While **27% of illiterate women who married before 18 years are underweight**, the proportion is **24% for illiterate women who married at the age of 21 years.** A **high proportion (64%) of illiterate women is anaemic**, in terms of iron deficiency, irrespective of their difference in age at marriage.
- In terms of the gap between marriage and first pregnancy, it is surprisingly 2.5 years among the former and 1.6 years among the latter. However, the former **give birth to a higher number of children (2.4)**, on average, than the latter (1.4).

Way Forward

- **Increasing the age of marriage without a commensurate improvement in women's education is least likely to yield better health and nutritional outcomes.** Instead, it might adversely impact the poor and illiterate.
- The fact that about one-fourth of women in India have married before 18 years despite the law tells

us that legally increasing the age of marriage may not fully prevent child marriages.

- By contrast, much of the benefits can be reaped by **ensuring that women complete education at least up to 12 years.**
- The case of **Bangladesh** shows that **improving women's education and imparting modern skills** to them that increase their employability reduces child marriage and improves health and nutrition.
- Also, **schemes which ease the financial burden of marriage but the eligibility criteria of which should essentially link to educational attainment in addition to age** demand attention.

Conclusion

- Educating women is important for their personal freedom, social well-being and contributes to human development.
- A legalistic approach to increasing the age at marriage will produce positive results only if it leads to an improvement in women's education and skill acquisition for employability.
- In the absence of an enhancement in women's schooling or skills, a legalistic approach to ending child marriage might become counterproductive.

8) Petty patents can boost R&D

Context

- Innovative activity is the key driver of competitiveness and economic growth. In this context, India ranks **46 in WIPO's Global Innovation Index (GII) 2021**, up from **81 in 2015.**
- This finding corroborates an earlier one by **UNCTAD** in its **Digital Economy Report 2021** where

India was seen as exceeding expectations.

R&D Activities

- Among the key indicators, **gross R&D expenditure (GERD)** as a percentage of **GDP at 0.7%** is low in India.
- It needs to **rise to upwards of 2% of GDP**, as in the leading innovative nations.
- Furthermore, **only about 30% of the GERD is spent by business enterprises**, despite the generous tax incentives offered by the government. This suggests that Indian enterprises have not got into an R&D culture.
- The bulk of innovative activity is conducted by a handful of companies in the **pharma and auto sectors**.

Boosting R&D Funding

- Given the strategic importance of innovative activity, governments in developed countries spend billions of dollars on R&D subsidies given to national enterprises to shore up their competitiveness.
- Funding support for R&D activity of business enterprises may help to direct it to a desirable direction or field. For instance, it may be used to **promote capability building** for new products, **process innovations** for local or global markets, focus on **enhancing ecological sustainability**, **promote industry's linkage** with public-funded research laboratories and universities, and so on.
- A generous programme is needed to push R&D activities of enterprises through funding for viable R&D proposals of industry to strengthen India's competitive edge.
- Besides, products based on **indigenously developed technology** could be given

production tax concessions (such as those extended to small-scale industry products) and **income tax concessions** (such as those enjoyed by export turnover) to encourage innovation.

The Patent System

- The number of patents registered by residents is another indicator of innovative activity.
- The **patent filings** by Indian enterprises and other institutions have increased from **8,841 in 2011 to 23,141 in 2020**.
- However, patents **granted** have been only **776 and 4,988 respectively**.
- Although the ratio of applications to grants has gone up over the years, **many patent applications fail to satisfy the three-pronged test of novelty, inventive step and utility**.

Petty Patent System

- Another policy to promote local innovation could be to **protect minor innovations** through the **utility models or petty patents**, as has been done by several East Asian countries.
- The patent system **fails to encourage minor innovations** since the **criteria for inventiveness tend to look at the novelty of the invention**.
- The experience of several East Asian countries suggests that petty patents and industrial design patents could be **effective means of encouraging domestic enterprises to undertake minor adaptive innovations and foster an innovation-based rivalry among them**.
- India should consider **adopting a petty patents regime** that provides **limited protection to minor incremental innovations**

made, especially those by MSMEs, often called **jugaad**.

- The utility models or petty patents typically provide a **limited period of protection (5-10 years in contrast to 20 years in case of patents)** and have **less stringent requirements and procedures**.
- Incentivising minor and incremental innovations through limited protection under utility models will help to foster the innovation rivalries among firms, particularly MSMEs, paving the way for more significant innovations by them in the future.

Conclusion

- India's rising rank in the global innovation league suggests its potential, opportunity, and stakes in boosting the R&D culture among business enterprises to strengthen their competitiveness. R&D funding and petty patents could foster these.

- Digital India Mission has completed seven years of implementation.

About the Programme

- Digital India is a flagship programme of the Government of India with a vision to **transform India into a digitally empowered society and knowledge economy**.
- It is an umbrella programme that covers multiple Government Ministries and Departments. It weaves together a large number of ideas and thoughts into a single, comprehensive vision so that each of them can be implemented as part of a larger goal.
- Digital India is implemented by the entire Government with **overall coordination being done by the Department of Electronics and Information Technology (DeitY)**.

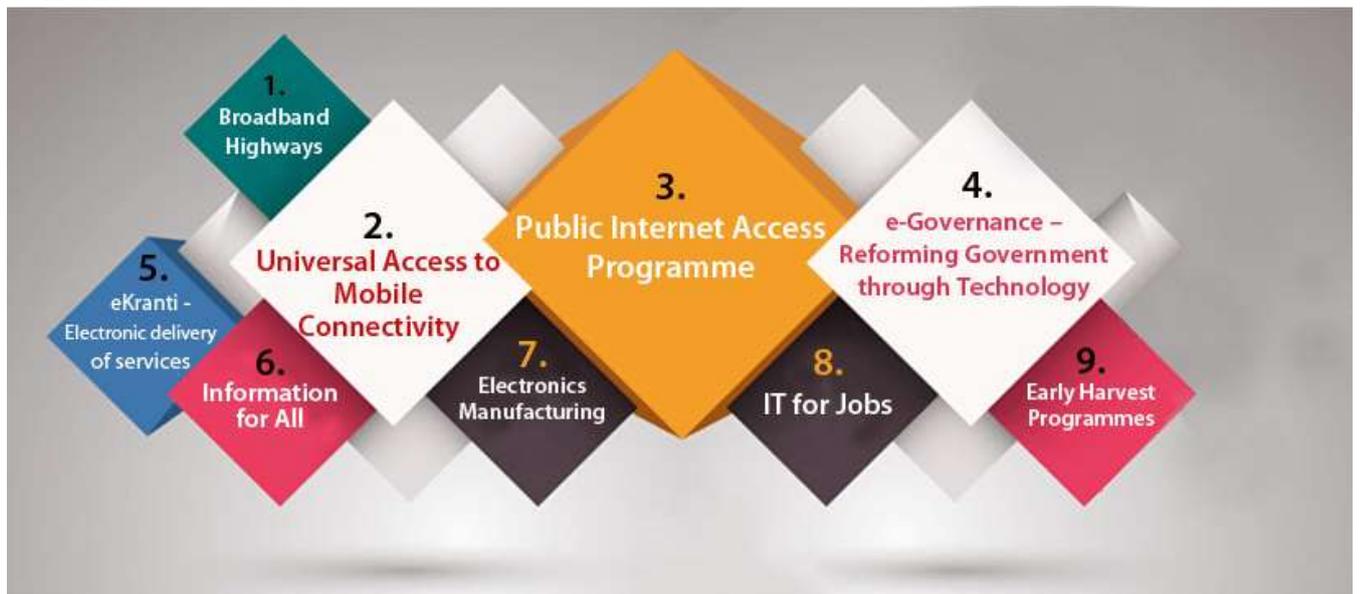
Vision Areas

- Digital Infrastructure as a Core Utility to Every Citizen
- Governance & Services on Demand
- Digital Empowerment of Citizens

Pillars of Digital India

9) Digital India

Context



Measures Taken

- Digital India is empowering the average Indian person. It has **made government services and procedures more accessible** to

the public, made them **transparent and inclusive**, and **addressed corruption**.

- Digital India has resulted in **easy access to services** for citizens.

With the aid of Digital India, obtaining a driver's licence, a birth certificate, paying a utility bill, a water bill, or filing an income tax return has never been simpler or quicker. All of this is taking place in communities and in Common Services Centers (CSC) close to residences.

- Today, there are nearly four lakh CSCs. These CSCs are offering banking, insurance, state and central government services, passport and PAN card services, digital literacy, rural eCommerce services and pre-litigation advice etc.
- The government has taken several measures to promote Digital India which includes:
 - **Internet in Remote Areas:** CSCs assisted in bringing the Internet to distant locations. Work is now being done on a mission mode under the **Bharat Net** initiative to deliver broadband internet to all the villages.
 - **Increased Inclusivity:** People who go to other states for work would benefit from the **One Nation One Ration Card** programme.
 - **PM WANI:** The PM-WANI framework envisages **provision of Broadband through Public Wi-Fi Hotspot providers**. It will consist of elements such as Public Data Office (PDO), Public Data Office Aggregator (PDOA), App Provider and Central Registry.
 - **DigiBunai:** This tool helps **weavers** generate digital artwork and translate saree

designs so they can be loaded onto looms.

- **Digilocker:** By offering a **digital storage facility** for school transcripts, medical records, and other critical certifications, it has aided millions of individuals, particularly during the epidemic.
- **eSanjeevani:** Launched by the Ministry of Health & Family Welfare 'eSanjeevani' is a **web-based comprehensive telemedicine solution**. It aims to provide healthcare services to patients in their homes.
- **Education:** Digital Infrastructure for Knowledge Sharing, or **Diksha Portal** functions as the nation's teaching-related digital infrastructure.

Impacts of Digital India Mission

- **Digital Payments:** Unified Payments Interface (UPI) has been implemented, bringing the advantages of digital payments to every region of the nation. UPI is assisting everyone with payments and transactions, from thriving enterprises to small street sellers.
- **Dispute Resolution:** Leveraging the power of drones and GIS technologies, **SVAMITVA Yojana** is providing digital land records to the rightful owners. This will not only reduce disputes but also facilitate monetisation of land for availing bank loans and enable scientific village level planning. Nearly 2.14 crore land parcels have been digitised so far.
- **Preventing pilferage by Transferring Money to Bank Accounts Directly:** The **Jan-Dhan-Aadhaar-Mobile (JAM)** trinity has

ensured that the poorest receive every penny of their entitled benefits. Financial benefits worth nearly Rs 23 lakh crore have been transferred using DBT technology in the last eight years. This has led to savings of Rs 2.22 lakh crore of public money.

- **Role during the pandemic:** From bulk messages to people in quarantine areas giving useful information and using digital technology for vaccination to digital education for students when schools were closed, there have been shining examples of empowerment, inclusion and opportunity.
- **Aarogya Setu**, a contact tracing app, has been essential in limiting the spread of Covid across the nation. The **CoWIN app**, which is the digital backbone for the vaccination drive in India, has garnered interest from other countries, and resources like these demonstrate India's technical competence.

Way Forward

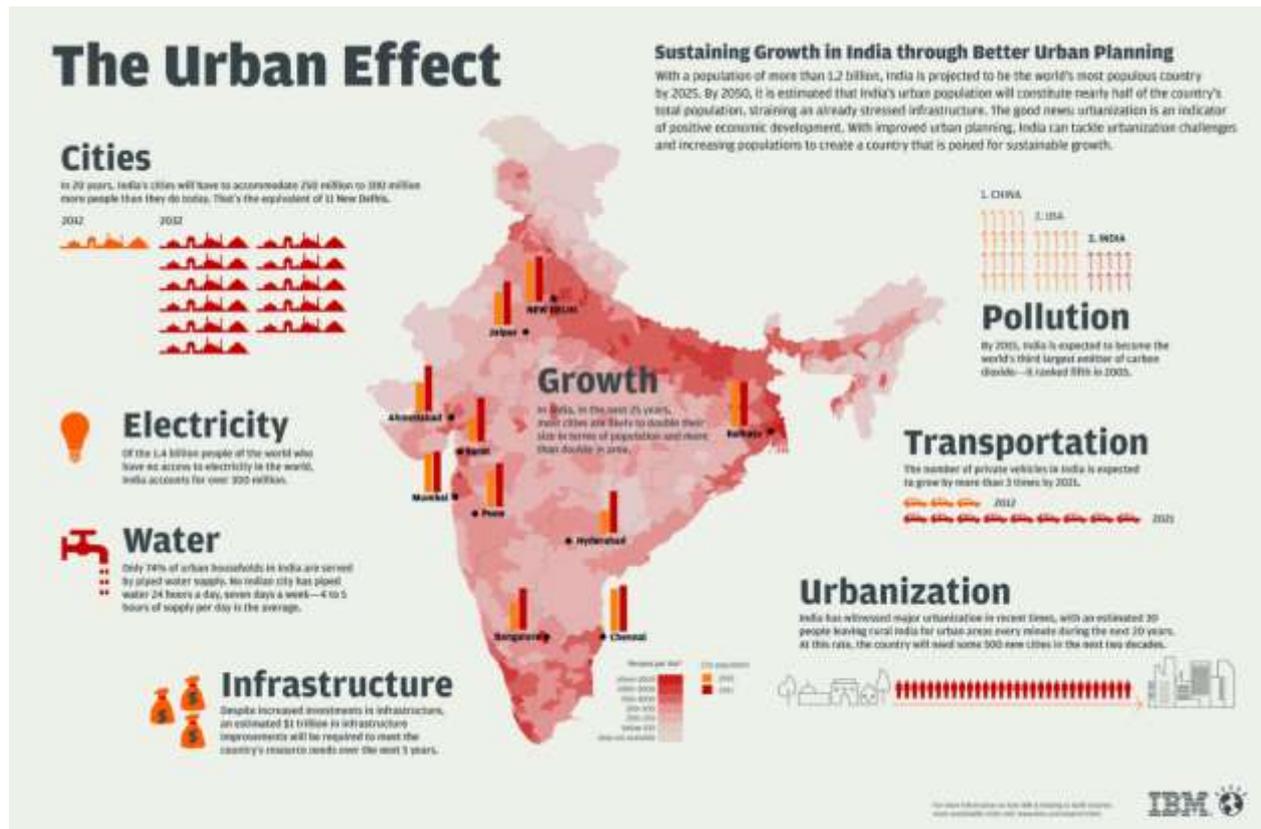
- This decade will be known as "**India's techade**" because of the data and demographic dividend and the country's demonstrated technological ability.
- Agritech, health tech, smart cities, e-governance, retail management, and smooth banking and payment solutions are just a few of the growing interventions in the domains of technology made

possible by Digital India, which has been building the infrastructure for years.

- The digital revolution in India will result in a paradigm shift for the country and its economy. India may become the country with the **fastest-growing digital economy** with the aid of public and private partnerships, favourable government policies, creative reforms, a demographic advantage, rising incomes, and the expansion of the startup culture in India.
- There are several **obstacles** standing in the way of its proper implementation, including digital illiteracy, insufficient infrastructure, slow internet, lack of collaboration amongst many authorities, and digital illiteracy.
- The following are some of the measures that can be taken:
 - **Local language content** of high quality;
 - **Data accessibility and decreased device prices**, particularly for smartphones;
 - Seamless **connectivity and fast technology** (5G, 6G);
 - More government services should be made available online, with more departments interacting with one another.

10) Urbanisation in India

Context



- With about 11% of the world's urban population residing in Indian cities, India has **the second-largest urban system in the world**. By 2036, urban expansion is anticipated to account for 73% of the population increase.
- India is far behind in terms of the rate of urbanisation. The **urbanisation rate globally was at 56.15 per cent** in 2020, while that for **India was 34.92 per cent**.
- Despite recognising the **positive correlation between urbanisation and economic growth**, India's problem does not lie in its unwillingness to foster urbanisation. In terms of sustainability and governance, Indian cities have difficulties.
- For instance: India invests just approximately **\$17 per person yearly on urban infrastructure projects**, compared to China's \$116 and the worldwide average of \$100.

Urbanisation of Indian states: An evaluation

- The **largest states (by area and population) have the least percentage of projected population living in cities**. Rajasthan had 26.19 per cent of the population projected to live in cities by 2020. Similarly, Madhya Pradesh had 28.66 per cent and Uttar Pradesh 23.59 per cent.
- **Ten States**—Maharashtra, Uttar Pradesh, Tamil Nadu, West Bengal, Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Rajasthan, and Kerala—comprise **more than 75% of the nation's urban population**.
- **Goa** is the state with the highest urbanisation rate (62.2%). Gujarat, Tamil Nadu, Kerala, and Maharashtra all have urban populations of above 40%.
- The levels of urbanisation in Bihar, Odisha, Assam, and Uttar Pradesh continue to be lower than the national average.

Need for Urbanisation

- The merits of urbanisation go beyond the positive push towards the growth of the country.
- Rise of agglomeration economies, the formation of industrial clusters, and the increase in competitiveness among and within each state, urbanisation offers **solutions to reduce income inequality and poverty**.
- It **enhances jobs and incomes** as more talent is attracted to urban conglomerates. With talent come **innovative solutions** and a larger share of each individual in the prosperity of the country.
- When rural farmers become urban manufacturing employees, productivity rises (Example: **China**).
- **Economic development and urbanisation** are positively correlated. Cities and the urbanisation process provide several benefits for development.
- Urbanization causes **agglomeration economies to flourish, economic clusters to grow, and state-to-state competition to rise**.

Role of Centre and State

- States must take the initiative in order to make cities thriving economic centres because the **bulk of city-related issues are state subjects**.
- The central government must take the lead in sustainable urban development while collaborating closely with state and local governments.
- The Center should take the initiative to educate states on the need for effective urbanisation and urge them to develop their own urban strategies.

India's Global Commitments

- **Urban planning** is one of the encouraged strategies for attaining sustainable development, according to **SDG Goal 11**.
- In 2016, the **New Urban Agenda of UN-Habitat** was approved. It outlines guidelines for the design, development, administration, and enhancement of urban environments.
- According to **UN-Habitat**, a city's ability to provide social, economic, and environmental value and well-being may be strengthened by the spatial circumstances of the city.

Issues

- While the rural-urban movement quickens the pace of urbanisation, it also places an **excessive amount of population pressure on the public services** already in place. As a result, **slums, crime, unemployment, urban poverty, pollution, congestion, bad health, and a number of abnormal social activities** plague the cities.
- Approximately 13.7 million slum dwellings in the nation are home to 65.49 million people, which results in **overcrowded slums**. Up to 65 percent of Indian cities contain nearby slums where residents live in close proximity to one another in modest homes.
- Considering the increasing population development, **inadequate sewage infrastructure** is seen in most urban areas.
- Cities are primarily constructed on economic criteria, giving **little thought to or value to the cultural and recreational components of human life**.
- Much of the cities are **not prepared for Environmental catastrophes**.
- For the purpose of "**vote-bank populism**," India's metropolitan

environments are frequently politicised, which excludes new immigrants.

- Contagious diseases including typhoid, dysentery, and diarrhoea eventually have a tendency to **spread quickly** in an urban setup. The Covid 19 pandemic is a real-world illustration of how overcrowded towns and healthcare infrastructure crumble when a pandemic hits.
- As a result of human activity, these urban regions are noticeably warmer than the nearby rural areas. **Urban Heat Island** is a significant issue brought on by growing urbanisation.

Way Forward

- **Successful management of urban expansion** is increasingly important for sustainable development as the globe becomes more urbanised, particularly in low- and lower-middle-income nations where the rate of urbanisation is anticipated to be the quickest.
- In order to better the lives of both urban and rural residents and to enhance the connections between them by building on their already-existing economic, social, and environmental relations, **integrated policies are required.**
- **Increasing the effectiveness of welfare and relief programmes,** as well as making sure that everyone has access to free immunizations, has access to food, and has suitable housing in slums. constructing clinics and healthcare facilities, enhanced sanitation and transportation options is crucial.
- Government initiatives to create cities that are intelligent, secure, environmentally friendly, and affordable should also receive more support and legal protection.

- The rate of urbanisation needs to be moderated in a way that the **influx of population is not concentrated in bigger cities only.** This is particularly important from the point of growth and investment potential of **smaller cities lying on the periphery of the major industrial cities that drive progress.**
- Shared goals of prosperity in tandem with urban growth will only be achieved when backward cities and towns are given attention in terms of development and enhancing investment potentiality.
- To better grasp the particular difficulties encountered by the urban poor, a **bottom-up strategy** should be used rather than a top-down one.

11) On women's rights, West takes a backward step, and India shows the way

Context

- The US Supreme Court recently ruled in favor of a strict Mississippi abortion law, in the process overturning Roe v. Wade, the landmark case that has been the basis for legal abortions across America for nearly half a century.
- In this context, the Union Minister for Women and Child Development recently talked about how India is leading the change in empowering women.

The Medical Termination of Pregnancy (Amendment) Act, 2021

- India's constitutional ethos commits to the **protection of personal liberty through Article 21.** Abortion or termination of pregnancy is a woman's prerogative. While women are exclusively fated to withstand child-bearing – purely on account of their biological predisposition —

socio-cultural constructs also subject them to a **disproportionate share of child-rearing.**

- **Unwanted pregnancies** unexpectedly curtail the life choices of parents, especially mothers, and may limit their mental well-being and personal growth. Further, children born unwanted may suffer **reduced opportunities.** Illustratively, the **WHO links the likelihood of children being born “wanted” to greater parental investments in their education.**
- The **unmet need for family planning** in terms of limiting or spacing child-bearing decreased from 12.9 percent to **9.4 percent** between NFHS-4 (2014-15) to NFHS-5 (2019-21). However, on a standalone basis, **nearly 7 per cent of females aged 15-19 years were already mothers or pregnant** at the time of NFHS-5, a marginal decline over NFHS-4’s 7.8 per cent.
- Under the aegis of the MTP Act, **abortions may be performed up to 24 gestational weeks** on grounds of risk to the mother’s life, mental anguish, rape, incest, contraception failure or the diagnosis of foetal abnormalities.
- With the new regulations, more women will have access to safe abortion services, and those who need to end a pregnancy will be treated with respect, autonomy, secrecy, and fairness.
- The new regulations will assist achieve **Sustainable Development Goals (SDGs) 3.1, 3.7, and 5.6** by reducing avoidable maternal death. While SDGs 3.7 and 5.6 focus on ensuring that everyone has access to sexual and reproductive health and rights, SDG 3.1 is concerned

with lowering the rate of maternal death.

The Prohibition of Child Marriage (Amendment) Bill, 2021

- The Bill seeks to **push the marriage age for women from 18 years to 21 years.**
- The Bill cites the evidence cited by the WHO, which holds that **adolescent mothers aged 10 to 19 years are prone to higher risks of eclampsia, puerperal endometritis, and systemic infections** in comparison to women aged 20 to 24 years.
- **Children** born to such mothers additionally **face higher risks of low birth weight, preterm delivery and severe neonatal conditions.**

Surrogacy (Regulation) Act, 2021

- Given global inequalities, India became a **lucrative “biomarket” for surrogate mothers** in the past. The bodies of Indian women became commercialisation of motherhood, the commodification of women and their reduction to their reproductive capacity.
- The **Surrogacy (Regulation) Act, 2021, replaced commercial surrogacy with ethical, altruistic surrogacy.**
- The Act prohibits couples who are not of Indian origin from availing surrogacy in the country and allows only locals with certified, medical reasons necessitating gestational surrogacy to avail of it.
- **A couple**, defined as a lawfully married woman and man, **or a woman who is a widow or a divorcee between the ages of 35 and 45** may choose to use a surrogate if they have a medical condition that calls for it.
- Additionally, **commercial surrogacy is prohibited** and is subject to a fine of up to Rs. 10

lakhs and a 10-year prison sentence.

- Only altruistic surrogacy, in which no money is exchanged and the **surrogate mother is genetically related to those desiring a child**, is permitted by law.

Other Initiatives for Maternal Health and Female Empowerment

- Under the aegis of **Ayushman Bharat-Jan Arogya Yojana (PM-JAY)**, a health cover of Rs 5 lakh per family per annum is provided and a wide range of packages pertaining to obstetrics and gynaecology are offered.
- **Pradhan Mantri Matru Vandana Yojana (PMMVY)** partially compensates wage loss before and after pregnancy. Under the scheme, Pregnant Women and Lactating Mothers (PW&LM) receive a **cash benefit of Rs. 5,000** in three installments on fulfilling the respective conditionality, viz. early registration of pregnancy, antenatal check-up and registration of the birth of the child and completion of the first cycle of vaccination for the first living child of the family.
- The **Pradhan Mantri Surakshit Matritva Abhiyaan (PMSMA)** provides free antenatal care to pregnant women on every 9th day of the month, easing the financial burden of pregnant women.
- **Janani Suraksha Yojana (JSY)** is a safe motherhood intervention promoting institutional delivery among pregnant women especially with weak socio-economic status. **Financial assistance** under JSY is available to all pregnant women in those States/UTs which have low institutional delivery rates which are categorized as Low Performing States. The impact of the scheme can be noted through the **increase in institutional deliveries** from 79

per cent in NFHS-4 to nearly **89 per cent** in NFHS-5 and **declining Maternal Mortality Ratio (MMR)** from 167 per lakh live births in 2011-13 to **103 per lakh live births** as of 2019.

- **Labour room Quality Improvement Initiative (LaQshya)** aims at improving quality of care in labour room and maternity Operation Theatre (OT) in the country. The objective of the programme is to reduce maternal and newborn morbidity and mortality and improve quality of care during delivery and immediate post-partum period.
- The **Beti Bachao, Beti Padhao campaign** addresses the declining Child Sex Ratio (CSR) and related issues of women empowerment over a life-cycle continuum. It has resulted in **improved sex ratio of 1,020 females per 1,000 males**.
- Yojanas such as **Ujjwala** (to provide clean cooking fuel to poor households) and **Jal Jeevan Mission** (to provide Functional Household Tap Connection (FHTC) to every rural household) give many women much needed respite from collecting fuelwood or water.
- The **Mudra Yojana** (which provides loans upto Rs. 10 lakh to the noncorporate, non-farm small/micro enterprises) has provided aspiring women entrepreneurs with loans without collateral

Way Forward

- India has instilled conscientiousness into the calculus of policy-making with a fervent hope that it will better the lives of the mothers and daughters of India for generations to come. Even as the West retrogresses, India shows the path to a progressive society.

12) India's energy needs

Context

- The Russia-Ukraine conflict has proved that India should be more self-reliant and have in-house energy sources.
- A significant fallout of the conflict has been the rising cost of petroleum.

India's Response

- **Russia** is the world's largest exporter of oil products to global markets. About 60 percent of Russia's oil exports go to Europe and another 20 percent to China.
- **India** is the **third-largest importer and consumer of oil** in the world and has increased our purchase of Russian oil to cope with rising oil prices elsewhere.
- Procuring discounted Russian oil is an effort by the government to bring down prices and halt the decline in the value of the Indian rupee.

Issues

- In response to the Russian invasion, Western countries, including the United States and Europe, have imposed an **array of sanctions against Russia**. For now, Russia has been able to take the sting out of the sanctions by selling crude, oil and coal at reasonable prices in greater volumes to newer bulk buyers like India, to combat Europe trying to wean itself off Russian crude.
- However, this ability to buy cheap Russian crude may **only be a temporary solution to our long-term fuel needs**. Apart from geopolitical changes in the world indicating the rise of China, there is a major change: **Electric vehicles and electric batteries** substituting for non-renewable resources like petroleum and diesel.

- In addition to this, **India cannot afford to be dependent on an unhindered supply of electric batteries from China**, given geopolitical considerations and border disputes between the two nations.
- India should make efforts to put in place factories which will build the electric batteries that will power our futures.

India's self-reliance in energy sector through renewable energy

- The **majority of India's energy comes from fossil fuels**. Coal (44 percent), oil (25 percent), and natural gas (75 percent) provided the majority of India's energy in 2020. Securing a long-term supply of oil and natural gas is difficult due to their finite deposits.
- Currently, **imports satisfy 75% of India's demand for oil and gas**. According to the **International Energy Agency's Energy Outlook 2021**, this might increase to **90 percent by 2040**. Economic exposure to external shocks results from import dependence's accompanying geopolitical risks (e.g., India's energy security is fragile due to political instability in the Middle East or a danger to the world oil supply chain).
- To satisfy the rising demand, India's new energy policy places a clear **emphasis on renewable energy sources**.
- India is a significant contributor to a global green economy and one of the world leaders in the generation of renewable energy. The main energy sources that contribute to a low-carbon economy include renewables like solar, wind, hydro, biofuels, and green hydrogen.

Way Forward

- To address the nation's rising energy needs, India must utilise

solar, wind, and particularly clean hydrogen energy in its electrical grid.

- In addition to market and regulatory assistance, it will be made practicable by addressing the flexibility of demand, plants, storage, and the grid.

13) Springs make Himalayas

Context

- For more than a decade, women of Bohal, Odi and Mandai villages in Himachal Pradesh's Mandi district have protected the forest spring in their area, a vital source of water not just to the villages but also to the nearby town of Palampur.
- In 2010, they signed a **20-year agreement with the Palampur Municipal Council** to protect the springshed by curbing excess grazing and by undertaking soil conservation efforts to check land degradation and allow rainwater to properly recharge the spring.
- In return, they received an annual payment of Rs. 10,000 from the council and tapped water for their households. This was **India's first payment for ecosystem services agreement**.
- It gives people of the villages a **sense of water and economic security**, and assures the council of **better water supply** for two decades. It also brings forth the need to conserve forest springs.

A Neglected Asset of Nature

- Springs, a natural discharge from the ground water aquifer, has a significant impact in maintaining the Himalayan ecosystem. It serves as a **source of freshwater** for rural communities to meet various purposes such as domestic, agricultural and livestock.
- **NITI Aayog** estimates that some **60% of the population in the**

hilly regions depends on springs from Himalayan forests for sustenance, livelihoods and ecotourism.

- These **springs and surface run-off contribute 57-87% to the river flow** that caters to the hills and plains of Punjab along with Haryana, Uttar Pradesh, West Bengal—major agriculture producers—and other states in the Ganga basin.
- Unfortunately, these springs didn't get their due attention which has deteriorated its condition over a period of time resulting in drying of these springs.
- There are 5 million springs across India and almost 3 million of which are alone in the Himalayan Region and nearly **50 per cent of them are drying up**. The drying up of springs also affects the flow of India's perennial rivers such as the Ganga and the Brahmaputra.

Incentivise to Protect

- **Ground-level efforts to conserve forest springs** by involving local communities and administrations as seen in Himachal Pradesh, can bring about a holistic change.
- One way to induce a multi-stakeholder effort is by introducing **incentive based mechanisms**. In environmental management, incentive-based mechanisms are used to encourage entities to reduce pollution. But incentives can also foster **positive change in the behavior of service providers**.
- Eg: In 2019, at the first Conclave of the Himalayan States, all nine states in this region put forth a proposal asking the Union government to give them financial compensation or a "**green bonus**" to forego infrastructural development and for maintaining their forest cover.

- The Centre can introduce such a bonus with specific criteria for springshed management, rather than maintenance of forest cover.
- Incentive-based mechanisms can also be used to coalesce institutional efforts and expand their scope.
 - a. **Central Level:** Ministries dealing with agriculture and industries can create resources to incentivise springshed conservation efforts by the Union environment and water resources ministries.
 - b. **State Level:** Chief secretaries of all departments can pool resources to work for forest conservation.
 - c. **District Level:** District administration can pool resources from its departments, private sector, municipal corporations, schools and hotels to support divisional forest management plans.
 - d. **People's Participation:** Human power can be roped in under the **MGNREGA** for ground-level support. At the village level, women groups, like the one in Himachal Pradesh can be incentivised to spearhead conservation efforts.
 - e. The **private sector** can go beyond its **Corporate Social Responsibility (CSR)** initiatives, by ensuring recharge of springs and other water sources they use. *(In India, any company that has a net worth of at least Rs 500 crore, a turnover of Rs 1,000 crore or a net profit of Rs 5 crore is obliged to spend 2% of*

its average profits over the last three years on CSR)

Way Forward

- Proper recharge of springs do not just ensure **continuous piped water supply**, but also **reduce expenses and carbon footprints** involved in lift water schemes wherein water is pumped from rivers, lowering bills for suppliers and end-users.
- It could also bring forth **solutions for forest conservation and create jobs, curbing migration from the hills** which will have benefits for Himalayan states and the communities without sacrificing conservation or development.

14) Sabhas we must Listen to Context

- As India celebrates its 30th anniversary of the 1992 constitutional amendment (73rd Amendment Act) that gave legal backing to the Panchayati Raj system by making India's governance three tier—the Union, state and the local governments—one of the biggest contributions of the amendment has been the formalization of the gram sabha.

What is Gram Sabha?

- A gram sabha is an **assembly of all eligible voters in a village** and its formation is similar to a legislative assembly.
- A gram sabha has **legislative, supervisory and executive powers**. It approves all village plans, supervises their implementation and monitors the elected panchayat members.
- A village, with the gram sabha at the core of decision making, is **mandated to make at least five five-year plans** (covering **education, employment, water,**

and sanitation) and is engaged in the certification and implementation of over 200 development schemes.

- A gram sabha, just like Parliament, establishes **standing committees** to supervise government officials involved in the implementation of schemes.
- For instance: Several villages have an all-women standing committee to certify water projects.

Evolution

- These village assemblies are a replay of India's ancient village governance systems.
- **Mahatma Gandhi** fiercely advocated for such a body to drive the self-reliant villages.
- But **B.R.Ambedkar** resisted such a move. He said, "What is the village but a sink of localism, a den of ignorance, narrow-mindedness, and communalism?"
- The Constituent Assembly stopped short of giving a legal backing to traditional village institutions as it kept local governance under the **directive principles**.
- The 1992 constitutional amendment finally formalised the Panchayati Raj system, making it the **world's largest experiment in decentralised governance**.

Significance of Gram Sabhas

- In the early years, the elected panchayat members resisted scrutiny from the gram panchayat. This reduced the Panchayati Raj system to "**sarpanch raj**", killing the very spirit of this decentralised governance system.
- But states like **Karnataka** in the 1980s started formalising the role of gram sabha by making its meetings compulsory. **Kerala** took up people's campaigns to make decentralised planning for villages,

with gram sabhas at the core of the planning.

- By the early 2000s, the Union government had made **two sessions of the gram sabha compulsory every year**. Many States have a minimum number of 4 mandatory meetings of gram sabha in a year. It should be noted that the number of mandatory meetings of the gram sabha are as per State PESA Rules, State Panchayati Raj Acts and State Panchayati Raj Rules.
- As panchayats are now the **prime executor of rural development schemes**, with budgets over Rs 1.5 lakh crore, governments have started making gram sabhas the **main supervising body** for the elected members and the government officials in charge of implementing these schemes.

Conclusion

- The rise of the gram sabha reflects the need for further deepening of decentralized governance through direct involvement of the voters.

15) Decoding Modern Tech Terms

Context

- This is the era of path-breaking innovation, invention, and products showcasing the use of technology. These products startle us with their capabilities and possibilities.
- While Artificial Intelligence, Quantum Computing, Cloud Computing, and Blockchain were making a mark till recently, NFTs and Metaverse are added to the list of these buzzwords.

Blockchain

- Blockchain refers to a system whereby **information about transactions is stored on countless computers spread across the globe**. It is considered

as an alternative to the conventional banking system.

- Under this, transactions are recorded on computers worldwide, and this system has nothing to do with the banks. The information stored under the Blockchain is **even more secure** than our banking system because countless copies of that information are kept on computers around the world. No one can hack so many computers.
- The **cryptocurrency**, which is much talked about nowadays, has its transactions done through this blockchain system.

NFTs

- The success of blockchain as an independent means of storing and authenticating information has created many more innovations. One of these is the **NonFungible Token, or NFT**.
- Here, the **information is stored in the blockchain system itself**, especially in a system called **ethereum**.
- Under a Non-Fungible Token system, a kind of **digital certificate** is issued that an original thing, unique in the world (such as expensive original painting, something of historical importance, or memorabilia (eg: a special attire worn by a celebrity)), is owned by you. This **digital certificate cannot be tampered with**.
- NFTs can be associated with **physical assets and virtual or digital assets**. For instance, some time ago, Jack Dorsey, Founder of Twitter, sold the first tweet he ever posted through NFT for USD 2.9 million. You may ask– how can one sell a post made on a digital platform? Anyone can copy it, take its screenshot or create a similar post. And how to prove that it is the

same original note as it has not been kept as a printout?

- So the NFT proves that Jack Dorsey has sold this comment and is now owned by the person who bought it. The price is for the information and certificate only. Now, no one else can sell it except its new owner. Even though millions of people retweeted the original tweet, anyone can copy it, but the post owned by that person will be considered original.
- This digital certificate is **not in the form of writing but in the form of a digital image, video, etc**. The same is called Non-Fungible Token (NFT). Non fungible means that it is the **only one in the world, i.e., unique**. This digital asset has been created so that it cannot be copied, and therefore it is safe.

Metaverse

- Metaverse means a **parallel universe present in the digital world** that contains most of the things that exist in our physical world. Accessing this virtual world requires the Internet and digital devices, just like you would access a video game.
- You present yourself as a digital person in the game, competing with other players, making friends, and engaging in other activities. You participate in the game from your laptop while others take part through gaming devices or mobile phones.
- If the same video game is expanded widely and countless people could access it digitally, it would be the metaverse. However, it will not merely be a gaming activity. There will be much more, such as various events, business, entertainment, meetings, etc. People will be there but in their **virtual, digital avatars**.

Quantum Computing

- A quantum computer can **perform calculations millions of times faster than a normal computer.**
- Traditional computers work based on a fundamental unit of binary digits (0 and 1) called 'bit'. On the other hand, the Quantum computer adopts **Qubit** (Quantum Bit). While the bit value can be 0 or 1 only, the **qubit value can be 0, 1, or both.**
- Unlike traditional computers, quantum computers are **not limited to just two states.** Where transistors are used in normal computers— **atoms, electrons, ions, photons, etc.,** are used in quantum computers which can be superimposed on each other.
- The working system of a quantum computer differs completely from the traditional computer, and its **capacity is tens of millions of times more.**

Artificial Intelligence

- Artificial intelligence (AI) refers to the **ability of machines (or technology) to learn, analyse, think, understand, solve problems, and make decisions, etc., similar to a human being.**
- Apart from advanced research and development, many factors are creating this capability, such as the availability of large amounts of data, the ability to analyse it, the enormous increase in the capacity of computers, and the development of cloud computing, internet connectivity, etc.
- AI is used in features like machine translation, voice-to-text conversion, etc.

Cloud Computing

- Whatever enormous work has been accomplished through AI today, it would not have been possible without the help of cloud computing. Cloud computing has

made **vast computational power and storage space** available to us, and technology like AI requires it for calculations.

- The word 'Cloud' refers to the **infrastructure on the internet** where various types of technical resources are present, such as **hardware, software, and services.**
- Cloud computing implies using the resources available on the internet on people's computers or devices. These resources are broadly of **three types— the complete infrastructure of IT, i.e., hardware, software, etc.**
- There are two more types of cloud— **Software as a Service (SaaS) and Platform as a Service (PaaS).** SaaS is the service one can use through the cloud for some time without buying softwares like Photoshop, Microsoft Word, or AutoCAD. PaaS means technology platforms using which one can develop softwares and manage them, providing them to others for use. Everything is done remotely through the internet, without having to buy anything.

16) Capacity Building Commission Context

- The capacity of Civil Services plays a vital role in rendering a wide variety of services, implementing welfare programmes, and performing core governance functions.
- A transformational change in Civil Service Capacity is proposed to be affected by organically linking the transformation of work culture, strengthening public institutions, and adopting modern technology to build civil service capacity with the

overall aim of ensuring efficient delivery of services to citizens.

Mission Karmayogi

- Mission Karmayogi is a nationwide programme to **lay the foundation for capacity building of civil servants**. It was launched in 2020.
- Officially called the "**National Programme for Civil Services Capacity Building (NPCSCB)**", the mission plans to transform human resource management in the country.
- Mission Karmayogi **aims to prepare the Indian Civil Servants for the future** by making them more creative, constructive, imaginative, innovative, proactive, professional, progressive, energetic, enabling, transparent, and technology-enabled.
- Empowered with specific role competencies, the civil servant will be able to ensure efficient service delivery of the highest quality standards.
- Under the Mission, the **Capacity Building Commission** was constituted in 2021. As the custodian of the civil services capacity building ecosystem, the commission is mandated to perform the following functions:
 1. Facilitate preparation of **Annual Capacity Building Capacity Building Commission Plans** of departments, ministries, and agencies.
 2. Make Policy recommendations to the Department of Personnel and Training.
 3. Evolve a harmonious de-siloed approach to improve civil service capacity.
 4. Analyse learning/competency-related

data from **iGOT-Karmayogi**, an online training platform.

5. Drive standardisation, harmonisation, and shared understanding of Capacity Building activities.
6. Create **shared learning resources**, including internal and external faculty and resource centers.
7. Exercise functional supervision over all Central Training Institutions.
8. Undertake an **audit** of Human Resources in the Government and outcomes of the Capacity Building efforts.
9. Approve Knowledge Partners and Content Validation mechanism for the training of civil servants.
10. Organise a global HR Summit to bring best practices of human resource management to the governance in India.

17) Jan Suraksha

Context

- Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY), Pradhan Mantri Suraksha Bima Yojana (PMSBY), and Atal Pension Yojana (APY) were launched in 2015.
- These three social security schemes are dedicated to the welfare of the citizens, recognising the need for securing human life from unforeseen risks/losses and financial uncertainties.
- While the PMJJBY and PMSBY provide access to **low-cost life/accidental insurance cover** to the people, the APY provides an opportunity for saving in the present for getting a **regular pension in old age**.

Pradhan Mantri Jeevan Jyoti Bima Yojana

- **Scheme:** PMJJBY is a one-year **life insurance Scheme** renewable from year to year, offering **coverage for death due to any reason**.
- **Eligibility:** Individuals in the **age group of 18-50 years** having a savings bank or a post office account are entitled to enroll under the Scheme. People who join the Scheme before completing 50 years of age can continue to have the risk of life covered up to age of 55 years upon payment of premium.
- **Benefits:** **Life cover of Rs 2 Lakh** in case of death due to any reason against a premium of **Rs 330 per annum** (recently increased to **Rs 436 per annum**).
- **Enrolment:** Enrolments under the Scheme can be done by visiting the branch/Banking Correspondent point or website of the bank of the account holder or at the post office in case of a post office savings bank account.

Pradhan Mantri Suraksha Bima Yojana

- **Scheme:** PMSBY is a one-year **accidental insurance Scheme** renewable from year to year, offering coverage for death or disability due to accident.
- **Eligibility:** Individuals in the **age group of 18-70 years** having a savings bank or a post office account are entitled to enroll under the Scheme.
- **Benefits:** **Accidental death and disability cover of Rs 2 lakh** (Rs 1 lakh in case of partial disability) for death or disability due to an accident against a premium of **Rs 12 per annum** (recently increased to **Rs 20 per annum**).
- **Enrolment:** Enrolment under the Scheme can be done by visiting the branch/Banking Correspondent point or website of the bank of the account holder or at the post office

in case of a post office savings bank account.

Atal Pension Yojana

- APY was launched to create a **universal social security system for all Indians**, especially the poor, the under-privileged and the workers in the unorganised sector.
- It is an initiative of the Government to provide financial security and cover future exigencies for the people in the **unorganised sector**.
- APY is administered by **Pension Fund Regulatory and Development Authority (PFRDA)** under the overall administrative and institutional architecture of the **National Pension System (NPS)**.
- **Eligibility:** APY is open to all bank account holders in the **age group of 18 to 40 years** and the **contributions differ**, based on the pension amount chosen.
- **Benefits:** Subscribers would receive the **guaranteed minimum monthly pension of Rs 1000 or Rs 2000 or Rs 3000 or Rs 4000 or Rs 5000 at the age of 60 years**, based on the contributions made by the subscriber after joining the Scheme.
- **Contribution by Central Government:** The minimum pension would be guaranteed by the Government, i.e., if the accumulated corpus based on contributions earns a lower than estimated return on investment and is inadequate to provide the minimum guaranteed pension, the Central Government would fund such inadequacy. Alternatively, if the returns on investment are higher, the subscribers would get enhanced pensionary benefits.
- **Withdrawal from the Scheme:** Subscribers can voluntarily exit from APY subject to certain conditions, on deduction of

Government co-contribution and return/ interest thereon.

18) NFT Explained

Context

- Artists need a platform to showcase their piece of art and to monetise it in order to earn a living, and to ensure the protection of the source, the ownership, the copyright, and its future value.
- With the invention of Non-Fungible Token (NFT), a technology that allows creators and artists to bypass the intermediary altogether, decentralisation allows artists and creators to gain control— not just over the financial value of their artworks but also over the ownership and copyright of the same.

What is an NFT?

- The NFT stands for **Non Fungible Token**.
- **Token:** Token can be anything— a **piece of art, a musical melody, a video, a game, or even a physical object**. There are many things which can be and have been converted into Tokens, e.g. Concert Tickets. These tokens are mostly PNG images, animated images (GIF), MP4 Audio tracks, or videos.
- How is an image on the internet different from an NFT? An image becomes an NFT **when it is stored on an online network of computers called Blockchain, and a unique serial number is assigned** each time a Token is placed on the Blockchain Network. Each NFT has its unique serial number and that also makes the Token Non-Fungible.
- **Fungible:** If an **object can be replaced by another object**, it is called Fungible. E.g. one Rs 500 note can be replaced by another Rs 500 note. Its value is not going to

change even after the replacement. Therefore, it is a Fungible object.

- On the other hand, something having a value of **personalised or unique nature that cannot be replaced by another object makes it a Non-Fungible object**. For eg: A celebrity's laptop will probably have more worth than someone else's, even if it's the same model and brand.
- Similarly, **one NFT cannot be replaced by another NFT**, because even if it is the same image, each copy of this image has its unique serial number and therefore, has its own value, making it unique.

Why choose NFTs?

- The question that naturally arises is, why buy/sell NFT when you already have these objects like image artworks, music tracks, MP4 videos existing on the internet and/or with the intermediaries like art galleries, music labels, streaming platforms?
- With NFTs, **all artists and creators can now easily display and monetise their work. Artists can sell their work directly as an NFT** to a consumer and make a profit, this leads to less dependence on traditional art galleries and auctions.
- **Royalties** can be included, which means that each time their NFT is sold, the artist can receive a certain percentage of the price at which the consumer decides to resell it.
- NFTs ensure **ownership of a digital object**, thanks to the Blockchain.
- There are more benefits of NFTs. To name a few important ones: Firstly, **each NFT is unique**, the only one of its kind. It is impossible to create another NFT with the same serial number. Everything is verified by the blockchain and can

be seen by everyone. The owner of that Token on the Blockchain will have full commercial copyright to use that image and asset.

- Secondly, because they are unique and cannot be copied, **they are scarce**. Most of the time, there are very few NFTs from an artist or seller. Therefore, you can safely assume that you will be one of the few people in the world to own a collectible that can then be resold.
- Thirdly, **no one can change the metadata of the token, no one can delete your image or the name of the token**. This means that it will never change, it will never be deleted, it cannot be removed from the blockchain, hence making it **immutable**.
- Apart from these benefits, NFTs are **collectible, downloadable, permanent, and resalable**.

How do NFTs Work?

- These NFTs are bought and sold **using cryptocurrencies** like Bitcoin, Ethereum, XRP, Dogecoin, Apecoin, Binance coin, WRX, etc. **Ethereum** has its own Blockchain Network, enabling the NFT sale and purchase.
- **Opensea** is the first, largest, and internationally popular platform for selling crypto goods including NFTs. In India, **WazirX** is a popular cryptocurrency exchange which also has its own cryptocurrency called **WRX**.
- It should be noted that NFTs are different from cryptocurrencies. **Cryptocurrencies are fungible**. One Bitcoin can be replaced by another Bitcoin and the value will be the same. On the other hand, each NFT is one of a kind and can have a **completely different value**.

NFTs and its Categories

- The most popular category in the present day is the **category of visual art as NFTs**: The community of creators, developers, artists, and merchants have started pushing their art into the new territory of NFTs.
- It all started with **CryptoPunks**, a set of 10,000 randomly generated pixelated images that proved the demand for digital ownership of non-physical objects and collectibles in 2017, and the market has been evolving rapidly ever since.
- **Music** as a category of NFTs is steadily evolving. Many artists are taking advantage of the NFT opportunity by offering their audiences limited edition unreleased tracks.
- Another popular category of NFTs is **Metaverse**. It is a **virtual world powered by the Blockchain** where users can create and trade digital assets, play games, buy plots of land, display art in galleries, etc.

Conclusion

- The benefits of using NFTs are ample and the real-life use-cases are on the rise day by day. The NFT-fication of everything will take place in the years to come and anyone can participate.

19) Accessible Healthcare to All Context

- Conceived with the idea of making quality healthcare accessible to the most deprived and vulnerable sections of India's population, Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) is a bold and transformative resolve to change the healthcare paradigm of India.
- Ayushman Bharat Pradhan Mantri Jan Arogya Yojana aims to accelerate India's march toward

achieving **Universal Health Coverage (UHC)** as listed in **The National Health Policy (NHP) of 2017**.

- As of 1 April 2022, Ayushman Bharat PM-JAY in alliance with State health schemes covers a beneficiary base of more than 14 crore families (70 crore individuals).

Comprehensive Healthcare Benefits

- AB PM-JAY covers 1,670 treatment packages covering treatment for various medical specialties like oncology, neurosurgery, cardiovascular surgery, etc., **upto Rs 5 Lakhs per beneficiary family**.
- The benefits package under AB PM-JAY was comprehensive, covering **pre and post hospitalisation expenses**.
- The health benefits package was also made **portable across the country**, empowering beneficiaries from the remotest villages in India to seek treatment at the most advanced healthcare facilities in cities.

Convergence & Integration

- Under AB PM-JAY, considerable flexibility was provided to the States and Union Territories in choosing their mode of implementation, beneficiary database, and creating the network of hospitals.
- Further, **National Health Authority (NHA)** diligently pursued convergence with the existing State-based schemes.
- Currently, AB PM-JAY is implemented in alliance with more than 25 State-specific health schemes. This has ensured that the Scheme is operationalised in a manner best suited to the local context.

- State Governments were encouraged to set up **State Health Agencies (SHAs)** for better oversight of the Scheme at the State level. Additionally, **District Implementation Units (DIUs)** were set up in over 600 districts across the country. This ensured that the administrative reach of AB PM-JAY extended to the beneficiary's doorstep.

Ensuring Equity in Access to Healthcare Services

- Under AB PM-JAY, impetus has been given to extending the Scheme benefits to the marginalised sections of society covered under the **Socio-Economic Caste Census database**.
- Likewise, the Scheme has adopted an enlightened approach towards ensuring **gender-specific equity**. The erstwhile Rashtriya Swasthya Bima Yojana (RSBY) had mandated a limit of adding up to 5 family members. This led to the exclusion of female members of the household, especially the girl child.
- However, under AB PM-JAY, this **capping was done away with**. Women account for approximately 50% of Ayushman cards and 47% of authorised hospital admissions.

Public and Private Partnership

- Under AB PM-JAY, **both public and private hospitals have been empanelled** for providing healthcare services to the Scheme beneficiaries.
- The participation of the private sector has increased avenues for the Scheme's beneficiaries to seek treatment and concurrently reduced the burden on tertiary care facilities in the public sector.

Aapke Dwar Ayushman

- **Sustained beneficiary identification drives** are necessary to improve the

saturation of Ayushman cards and thereby increase awareness of the Scheme. Furthermore, there is a positive correlation between Ayushman cards generated and the demand for healthcare services under the Scheme.

- Under the **Aapke Dwar Ayushman** initiative, a grassroots network of frontline healthcare workers, Gram Panchayat officials, and village-based digital entrepreneurs were used to undertake door-to-door mobilisation of beneficiaries across communities.
- These efforts translated into the creation of more than 4.7 crores Ayushman Cards since January 2021, an increase of 55% in the Ayushman cards generated.

Conclusion

- AB PM-JAY is a path-breaking intervention to address healthcare delivery holistically.
- It has the potential to catapult India into the top countries of the world in terms of healthcare that's built on the **3As of Accessibility, Affordability, and Availability**.

20) AI and Machine Learning

Context

- Industry 4.0 is set to usher in an era of technologies that will completely alter the way in which we interact with the world around us.
- Artificial Intelligence/Machine Learning, IoT, 5G, Augmented Reality, Big Data, Nanotechnology, Robotics, and 3D printing are transforming the operational, functional, and strategic landscape across various industries.

AI's Potential

- **India has been ranked 8th in the top 10 countries by AI patent families**, ahead of Russia and France, with AI-related patent

applications growing tenfold from 2012 to 2018.

- A report titled '**AI Enabled SaaS: The Next Frontier for Global SaaS Start-ups from India**' highlighted that AI could generate over 9,00,000 white-collar jobs and 3.6 million indirect jobs by 2030.
- As per the government's think tank **NITI Aayog, by 2035, AI has the potential to add USD 1 trillion to the Indian economy**.
- AI and machine learning are particularly suited for India because the country is the **world's largest generator of democratic data** or data which is being generated and analysed under the democratic rule of governance.
- As India has a great diversity of people and cultures, its data can help determine many patterns that might be difficult in many other parts of the world.
- The use of AI and machine learning, along with other technologies like blockchain, would enable **solutions to longstanding policy challenges in issues** like land transactions and medical record keeping.

National Strategy for Artificial Intelligence

- To support this thriving AI industry, **NITI Aayog** released a **National Strategy for Artificial Intelligence #AIforAll** in 2018. The paper lays out the roadmap for India to leverage the coming-of age technologies to ensure inclusive growth and social development.
- #AIforAll aims at enhancing and empowering human capabilities to address challenges of access, affordability, and efficiency in endeavouring to scale Made-in-India artificial intelligence solutions for the benefit of the developing and emerging economies.

- The paper identifies **five priority sectors** that are envisioned to gain the most incremental value from the adoption of these transformative technologies in solving societal needs: **a) healthcare**– increasing access to quality and affordable healthcare, **b) agriculture**– enhancing crop yield, ensuring food security, and increasing farmers’ incomes, **c) education**– enhancing the quality of education and human resource productivity, **d) smart cities and infrastructure**– ensuring efficient connectivity and promoting intelligent urban planning, and **e) smart mobility and transportation**– enabling efficient and safe transportation.
- The National Strategy aims to support and enable India’s AI ecosystem through **grants, product and solution development, collaboration with the industry, and mentorship support** to startups.

Responsible AI Approach Documents

- NITI Aayog has also published **Responsible AI Approach Documents** in collaboration with the **World Economic Forum Centre** for the next AI Industrial Revolution.
- The Documents seek to establish **broad ethics and principles** for the design, development, and deployment of AI in India.

Other Initiatives

- India is bringing in the use of AI in everything– from promoting digital health, and amplifying digital financial transactions to helping pensioners receive their payments with greater ease, and tracking down tigers to preserve them.
- In **Telangana**, AI is helping **authenticate pensioners** and ensuring that payments go to

pensioners who are alive (thus, removing chances of graft) and using basic images and information to help validate recipients.

- The **Ministry of Corporate Affairs** is using AI to **simplify corporate filings**.
- AI is an area of special importance for the **National Research Foundation**, and it is being promoted at the school level to encourage new talent in this sphere.

Conclusion

- In India, AI and machine learning are starting to be used in governance to give depth to the country’s democratic processes.
- From education to defence, health to e-commerce, there is hardly any area where this impact isn’t starting to become rapidly visible.

21) Deep-Tech Startup Ecosystem Context

- India has a vibrant startup ecosystem with supporting infrastructure– incubators, development grants, angel/venture investors, mentors– and a conducive policy environment.
- The **Economic Survey of India 2021-22** says that there are 61,400 registered startups in **India**, making it the **third-largest startup ecosystem** in the world behind China and the US.
- Over the past decade, Indian startups have created 6.6 lakh direct jobs and 34 lakh indirect jobs.
- The **Startup India platform**, which started in 2016, has been instrumental in encouraging startups and integrating them with the corporate and investment community.

- Notwithstanding the healthy development of India's startup ecosystem, one weakness that keeps India behind the developed countries is that we **lack deep-tech startups**.

What is a Deep-Tech Startup?

- Deep-tech startups arise from **research-based, disruptive innovations** from STEM (Science, Technology, Engineering, Mathematics) labs of academic/research institutions and solve hard problems and challenges.
- Some examples are— (a) recycling sewage to get clean water at an affordable cost, (b) a low-cost solution at scale for curing blindness, (c) affordable solutions for treating diseases such as diabetes, dementia, cancer, etc., (d) creating an alternative to Lithium-ion batteries, and (e) low-cost satellite launching systems.

Need for Deep-Tech Startup Ecosystem

- "Deep-tech" startups constitute **less than one per cent of the number of startups** in India.
- The absence of deep-tech startups harms India considerably by **weakening her capability to meaningfully address complex socio-economic challenges** that afflict our society in multiple sectors such as agriculture, healthcare, transportation, education, energy, etc.
- In India's population of 130 crores, **only the top 25% (affluent and middle-class) benefit from the fruits of technological progress**, be it healthcare, consumer goods, clean water, safe transportation, education, etc. This is because most of the hi-tech goods and services are designed in the developed world for rich people.

- The solution to this problem lies in **becoming Atmanirbhar in commercialising domestic science and technology to solve our challenging problems**. India's development challenges are so unique and idiosyncratic that innovators from developed countries, not familiar with our context or cost structures, will not be able to provide solutions.

Challenges to be addressed

- There are **some major problems** that deep-tech startups have vis-à-vis other startups.
 - Deep-tech startups need a **longer gestation for development** than other startups.
 - Deep-tech startups require **different types of inputs**— they require more long term capital, specialised talent, and expert knowledge in more than one domain, to develop and validate a science-based innovation to the point where it is acceptable to commercial investors.
 - The **risk of failure is high** at every stage for a deep-tech startup, usually higher than in the case of other types of startups. But the payoffs of successful deep-tech startups are tremendous. For instance, notable corporations such as Microsoft, Google, Apple, Intel, Tesla, Moderna, SpaceX, etc. started as mere technology bets not very long ago.

Creating Ecosystem

- There are several venture funds in India, but most pursue relatively 'lower risk' investment opportunities that exploit India's

- growing consumption economy or those making cloned products.
- While India has a problem of inadequate R&D expenditure for an economy of her size, there is a sufficient amount of high-quality research in India's top STEM colleges to fuel a deep-tech startup revolution.
 - Some **key reasons why our academic researchers lag in their potential to convert research into deep-tech startups** are:
 - There is **inadequate appreciation** amongst policymakers and university administrators for the need to build capacity amongst academic researchers, scientists, and STEM students in India.
 - Being formally trained in science and technology but **not having adequate exposure** to the real world of business/ commerce, academic researchers conflate invention and innovation.

Recommendations

- It is being proposed that policymakers should introduce **Customer Discovery and Customer Development programmes** to develop deep-tech startups from academic/ research institutions in India.
- The Customer Discovery exercise helps researchers know if their innovation has a market, or how they should shape their startup journey to maximise chances for success.
- In 2013, the US Government through the National Science Foundation introduced the **I-Corps programme** with great success to commercialise academic research in US universities.

- Analogous to the I-Corps programme, the Government of India should consider making it mandatory for every translational research proposal at a university/research institution or a deep-tech startup seeking admission to a government incubator to undergo a rigorous Customer Discovery exercise.

Conclusion

- By linking development grants/seed investment programmes for deep-tech startups with a robust Customer Discovery exercise, we can create in India a significant amount of deal flow of robust and curated deep-tech startups into incubators and the ecosystem.
- More importantly, a fair share of deep-tech startups will help in solving India's hard challenges.

22) Rural Tourism: India an Incredible Tourism Destination

Context

- India is one of the world's oldest civilisations which offer a kaleidoscope of cultural experiences.
- Tourism has become one of the most important economic sectors in countries like India, producing significant national income and creating high employment opportunities. It has become the **country's fastest-growing service industry** with excellent potential for expansion and diversification.

Tourism- A Catalyst to Economic Growth

- Under the **Swadesh Darshan scheme**, the Ministry of Tourism is developing thematic circuits in the country in a planned and prioritised manner. Under the scheme, 15 thematic circuits have been identified for development. It

includes North-East Circuit, Buddhist Circuit, Himalayan Circuit, Coastal Circuit, Krishna Circuit, Desert Circuit, Tribal Circuit, Rural Circuit, etc.

- The Ministry of Tourism has also launched the **PRASHAD scheme** which focuses on developing and identifying pilgrimage sites across India for enriching the religious tourism experience.
- The Ministry of Tourism also launched the "**Adopt a Heritage Apni Dharohar Apni Pehchan**" project which aims at ensuring quality & inclusive provision of amenities and facilities across heritage, natural, & tourist sites through active participation of private and public sector organizations and individuals. These organizations would be known as "**Monument Mitras**" for their collaboration initiative.
- The Ministry of Tourism has formulated a **National Strategy and Roadmap for Development of Rural Tourism** in the Country. The Strategy suggests **identifying clusters of villages** having high potential for tourism development in different parts of the country. The themes for rural tourism can include local crafts and cuisines, folk music, shows, dramas, agritourism, organic farming, yoga and meditation centres, lakes, etc.
- The Strategy is based on an overarching theme of **sustainable and responsible tourism**, which will be supported by **six strategic pillars** namely model policies and best practices for rural tourism, digital technologies for rural tourism, development of rural tourism clusters, marketing support for rural tourism, capacity building, Governance, and institutional support.

- Another significant milestone was the provision of **e-Visas** for nationals of 170 countries in five subcategories i.e. Tourist visas, e-Business visas, e-Medical visas, e-Medical Attendant visas, and e-Conference visas.
- Given **Lakshadweep's** enormous ecotourism and fisheries potential, India can become a role **model for ecotourism and sustainable fisheries** without jeopardising the fragile and sensitive biodiversity of the region.

Importance of Tourism

- In addition to the economic benefits, tourism has promoted **cultural interaction** between Indian citizens and people of other countries and fostered **regional cooperation**. The sector has also played a pivotal role in enhancing **India's soft power**.
- The tourism sector contributes immensely to **foreign exchange reserves** in the country and provides employment opportunities, both in the formal and informal sectors. The sector now contributes **4.7 percent to GDP, 7.3 percent to total employment, and 2.5 percent to total exports**.
- The fact that the **Services sector contributes 55 percent to the Indian economy**, makes the tourism industry even more crucial for the country's overall economic growth.
- Despite having a diverse culture and rich architectural heritage, India holds **only a 1.2 percent share of the international tourism market**.
- Countries like the UK and USA have only 34 and 24 World Heritage sites, respectively, but their foreign exchange earnings from Tourism

are much higher than India, which has **40 World Heritage sites**.

- Against this backdrop, India must adopt innovative approaches to boost and promote **different tourism segments** such as niche tourism, wellness tourism, adventure tourism, and spiritual tourism.

A Special Focus on Rural Tourism

- Over the past few decades, the country's tourism industry has grown exponentially. Rural India, which is rich in arts, crafts, and culture, has the potential to become a tourist hotspot.
- The government needs to focus on handholding with states based on a few significant parameters in rural India for tourism development. It includes:
 - Air/Rail/Road Connectivity
 - Infrastructure development
 - Identifying and linking heritage spots in the given destinations
 - Facilities like signage in English and other foreign languages
 - Tax issues - One India, one tax system for tourist vehicles, protects the tourists from facing multiple taxations
 - Connectivity to promote local tourism products, arts, and crafts to a national and global audience
 - Focus on digital media for promotional activities.
- Developing and promoting indigenous products through tourism can produce **revenue and employment** in rural regions and **empower local communities, youth, and women**, allowing Aatma Nirbhar Bharat to realise its mission.

- It will help **reduce the migration from rural areas, prevent poverty and promote sustainable development**.

Way Forward

- The government should acknowledge the importance of rural tourism in India and provide stakeholders with a sustainable environment.
- **Professional training** should be imparted to the eligible people with the aim of making them duly qualified and competent with the requisite professional skills and help them to take up jobs as **heritage tour guides** in the tourism industry.
- A **certified guide license** will further increase the credibility of a tourist guide in the eyes of the tourists, enhance the overall experience of tourists who visit the country, and generate employment opportunities in the tourism industry.
- Furthermore, the government should provide **appropriate funding and cost-effective infrastructure** to encourage the growth of rural tourism.
- Tourism in rural regions can only be maintained if a comprehensive, **inclusive planning strategy** based on a **multi-action, multi stakeholder participatory approach** is adopted and implemented.

23) Digital Currency

Context

- During the Union Budget 2022, the Finance Minister proposed to introduce a Central Bank Digital Currency (CBDC)- a digital version of the rupee, using blockchain and other technologies, starting 2022-23.

- Efforts to introduce CBDC are also gaining momentum across the world. 87 countries representing over 90% of global GDP are currently exploring a CBDC.

Issues with Cryptocurrencies

- A cryptocurrency like bitcoin is a **cryptography-based peer-to-peer electronic cash system** founded on blockchain and distributed ledger systems that allow the transfer of values **without any financial intermediary** such as banks.
- Cryptocurrencies aspire to be a new, digital, encrypted, and decentralised form of currency. However, to be considered a currency, there has to be a **unit** and a **defined process of issuance**.
- Many countries have refrained from officially recognising cryptocurrencies. There are reasons that legitimise the uncertainty regarding cryptocurrencies.
- One, the technology is decentralised where there is **no central agent to regulate or stabilise** the value of the currency. Two, the transactions are **slow, costly, non-scalable, and the process is far from simple**.
- Three, cryptocurrencies are **extremely volatile**. And lastly, there is a **threat to the security of the parties** involved in the transaction and there is a **potential risk of fraud**.
- So, clearly, if digital money has to exist, central banks have to play an important role as a regulatory, supervisory, and issuing authority.

What is CBDC?

- A Central Bank Digital Currency is a **digital token, similar to but not the same as cryptocurrency, issued by a central bank of a country**. They are **pegged to the**

value of that country's fiat currency and enjoy government mandate as opposed to cryptocurrencies.

- *Fiat money is a currency that lacks intrinsic value and is established as a legal tender by government regulation.*
- Usually, token-based CBDC doesn't require the two parties to have a bank account; a **person can pay with CBDC much like a payment made in cash**.
- The RBI is currently working towards a phased implementation strategy.
- Some key issues under examination are– (i) the **scope of CBDCs**– whether they should be used in retail payments or also in wholesale payments; (ii) the **underlying technology**– whether it should be a distributed ledger or a centralised ledger; (iii) **distribution architecture**– whether direct issuance by the RBI or through banks.

Innovative Approach

- It is important to understand that **digital currencies are not the same as the transactions made on digital payments portals**. The transactions on these portals are merely an **exchange of fiat money facilitated by technology** where no physical exchange is taking place between parties involved in the transaction.
- A digital currency on the other hand is **another category of fiat money that lacks any physical attributes and exists only in electronic form**.

CBDC vs Cryptocurrencies

- There are certain key factors that make the introduction of CBDC inevitable in India given the scope of digitisation in day-to-day banking activities.

- First, there is a **diverse range of virtual currencies being circulated** and the market currently is **extremely fragmented**. Second, due to their limited scale and efficiency, the **number of transactions occurring through private virtual currencies is very low**.
- Third, the **degree of pseudo-anonymity** provided by private digital currencies discourages participation as the transactions have to be recorded on a public ledger that every participant has access to. Fourth, there are many **technical and security concerns** associated with its use.
- Moreover, cryptocurrency is **largely decentralised** with no issuance authority behind it which makes it a **less trusted source of investment**.
- Despite a diverse range of virtual currencies being available, penetration of private digital currencies remains low which offers a strong case for India's own digital fiat rupee that will promote financial inclusion. It will ensure **privacy, transferability, convenience, accessibility, and financial security**.
- In a macroeconomic sense, the introduction of CBDC will also **help in reducing the cost of transactions for corporate consumers**, particularly large ones, across borders.
- CBDCs can **reduce the costs that the central bank bears** for printing, transporting, and managing cash.
- While they have all the positives of cryptocurrencies, CBDCs are **regulated and standardised** as opposed to being dictated by investor sentiments, usage, and user interest.

- Discontinuation of paper currency is also desirable as a **large sum of cash is precisely used to hide transactions** in countries, especially India. Additionally, digital currencies offer a way to **track frauds**, ensuring that resources of the economy are not misused.

Way Forward

- Once the use of digital currency becomes widespread, backed by the government's mandate, it can be used in **Direct Benefit Transfers (DBTs)** to the vulnerable population ensuring increased exposure to digitisation and quick financial assistance at the same time.
- CBDC will also be a **further push to e-commerce** with the greater trust of the masses in digital transactions that are backed by the government.
- A country like India with a large and diverse population works as a sample market for the entire world to understand the mechanism of a new product, in this case, a digital currency.

24) Quality Education

Context

- India has made remarkable strides in recent years in attaining **near-universal enrollment in elementary education** through initiatives such as the Sarva Shiksha Abhiyan (now the Samagra Shiksha) and the Right to Education Act.
- However, the data for higher grades indicate some serious issues in retaining children in the schooling system. The **Gross Enrolment Ratio (GER) for Grades 6-8 was 90.9%, while for grades 11-12 it was only 56.5%**, which indicates that a significant

proportion of enrolled students drop out after Grade 8.

- In this context, the New Education Policy (NEP) 2020 is attempting to reduce the dropout rate and achieve a 100% GER from preschool to secondary levels by 2030.

New Education Policy 2020

- NEP focuses on **reforming and revamping all aspects of the education structure**, including its regulation and governance, to create a new system that is aligned with the aspirational goals of 21st-century education. It is also envisaged to strengthen and expand high-quality institutions.
- As per the NEP, in addition to cognitive development, the students also need to be equipped with **critical 21st-century skills**.
- Experiential learning methods proposed under the NEP will increasingly be adopted, including hands-on learning, arts-integrated and sports-integrated education, story-telling-based pedagogy, and include explorations of relations among different subjects.
- To close the gap in the achievement of learning outcomes, classroom transactions will shift towards **competency-based learning and education**. Every student would be able to sample a hands-on experience of important **vocational crafts**, such as carpentry, electric work, metalwork, gardening, pottery making, etc.,– decided by States and local communities and as mapped by local skilling needs.
- A total of **750 virtual labs in science and mathematics** and **75 skilling e-labs** are planned to be set up for simulated learning.
- Similarly, to maintain the high quality of education, a **National**

Assessment Centre, PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development)

– as a standard-setting body under Ministry of Education that fulfills the basic objectives of setting norms, standards, and guidelines for student assessment and evaluation for all recognised school boards of India, guiding the State Achievement Survey (SAS) has also been proposed in NEP.

- Apart from the above, NEP aims to establish **school complexes/clusters**, and the sharing of resources across complexes will have a number of other benefits as a consequence, such as improved support for children with disabilities, more topic-centred clubs, and academic/sports clubs.
- It is proposed to develop a **National Digital Education Architecture (NDEAR)** to support teaching and learning activities including educational planning, governance, and administrative activities of the Centre and the States/Union Territories.
- Apart from this, **enhancing teachers' training and introduction of indigenous toy-based learning** also need to be prioritised.
- Further, it is also proposed to expand and strengthen **open schools** for meeting the learning needs of the youth of India who are not able to attend a physical school.

Key Schemes to achieve objectives of NEP

- **Exemplar:** The Scheme of Exemplar aims to **prepare more than 15000 schools of excellence** which will help showcase the

implementation of the NEP 2020 and emerge as exemplars and schools of excellence over a period of time. They will provide leadership in their respective regions in providing high-quality education in an equitable, inclusive, and joyful school environment that takes care of the diverse background, multilingual needs, and different academic abilities of children and makes them active participants in their own learning process as per the vision of NEP 2020.

- **New India Literacy Programme (NILP)**: It is a new Centrally Sponsored Scheme of **Adult Education** for Financial Years 2022-27. The objective of the scheme is to impart not only **foundational literacy and numeracy** but also to cover other components which are necessary for a citizen of 21st century such as **critical life skills, vocational skills development, basic education and continuing education**. The scheme will cover non-literates of the age of 15 years and above in all state/UTs in the country.
- **Operation Digital Board (ODB)**: The Scheme of ODB provides **class-centric digital intervention** for teaching and learning and is proposed to be implemented for **class IX to XII in all the government and aided schools in the country**.
- **Pradhan Mantri Poshan Shakti Nirman (PM POSHAN)**: PM POSHAN is one of the foremost rights-based Centrally Sponsored Schemes under the National Food Security Act, 2013 (NFSA). The main objectives of the Scheme (earlier known as Mid-Day Meal Scheme) are to address two of the pressing problems for the majority of children in India, viz. **hunger and education** by improving the nutritional status of eligible children in Government and Government-aided schools as well as encouraging poor children, belonging to disadvantaged sections, to attend school more regularly and help them concentrate on classroom activities.
- **Pradhan Mantri Innovative Learning Programme (DHRUV)**: This Scheme is an initiative to provide **guidance from renowned/prominent persons** in their field to select talented students.
- **Samagra Shiksha**: The erstwhile Schemes of Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA), and Strengthening of Teacher Training Institutions have been merged to form the Scheme of Samagra Shiksha. The merger intends to give a **holistic and integrated approach to School Education** in line with NEP 2020.
- **Strengthening Teaching-Learning and Results for States (STARS)**: The STARS project seeks to support the States in developing, implementing, evaluating, and improving interventions with direct linkages to improved education outcomes and school to work transition strategies for improved labour market outcomes.
- **ASPIRE (Accelerating State Education Program to Improve Results)**: ASPIRE is a Centrally Sponsored Scheme **supported by Asian Development Bank**. ASPIRE will assist the central government in implementing Samagra Shiksha, to **improve education outcomes**

in Assam, Gujarat, Jharkhand, Tamil Nadu, and Uttarakhand.

Way Forward

- Public spending on education has been in the range of **2-3.5% of GDP**. The reforms envisaged through NEP would require a substantial increase in public expenditure on education.
- A coherent model of synchronisation of funds for the education sector should be developed. The Central Budget may examine the State Governments' budget provisions on education before making budget allocations for the education sector.
- This convergence of State and Central Government funds and educational schemes would be useful in many ways to achieve the objectives of NEP 2020.

25) Accelerating Socio-Economic Development

Context

- Clean drinking water supply not only reduces the **burden of water-borne diseases** but is also a **prerequisite to ensure improved sanitation and hygiene**, leading to an overall improvement in public health.
- It also **relieves women and young girls**, who are considered the primary water managers, from the age-old drudgery of fetching water from a distance, and gives them the time to pursue education or vocation of their choice.
- However, with the increasing population, the impact of climate change, and competing demand for water from various sectors in a fast-developing economy, many regions face water stress especially during low rainfall years, leading to water supply systems not performing optimally.

Jal Jeevan Mission

- Addressing these challenges, in 2019, Government of India launched '**Jal Jeevan Mission (JJM)- Har Ghar Jal**' to make provision of **tap water connection to every rural home and public institution by 2024**.
- The focus is on '**assured and regular potable water service delivery at household level**', i.e., water supply in adequate quantity (**55 litres per person per day**) of prescribed quality (as per Bureau of Indian Standards) with sufficient pressure on a regular and long-term basis.

Challenges

- As per the **Central Ground Water Board report**, about 50% of groundwater sources either have quality or quantity issues, which means simple in-situ water supply systems based on groundwater may not work on a long-term basis in half of the country.
- Further, it is projected that **water demand will be twice its availability by 2030** and it is questionable considering that the per capita annual freshwater availability is likely to decline to 1,293 cu.m by 2025, which is very close to the water scarcity line.
- Thus, with the launch of JJM to ensure clean tap water supply to rural households, **water supply infrastructure** is to be created by providing functional household tap connections along with upgrading existing water supply systems to make them JJM compliant.
- This also means that **drinking water sources have to be strengthened and greywater has to be treated and reused**.

Community at the Centre

- JJM is about achieving **long-term drinking water security** in such a

way, so as to avoid making emergency arrangements through the deployment of tankers or trains, handpump installation, etc., in any village.

- It envisions working with a **'utility-mindset'** and making **use of information technology** at the village level, empowering and enabling local communities.
- The Gram Panchayat or its sub-committee, i.e., **Village Water and Sanitation Committee (VWSC)/Pani Samiti, etc.**, are to shoulder key responsibility in planning, implementation, management, operation, and maintenance of in-village water supply system.
- A typical VWSC consists of **10–15 members with 50% representation of women and proportionate representation of weaker sections of society.**
- This committee is empowered under the Panchayati Raj Act so that they are able to shoulder the assigned responsibility.
- **Every village is being taken up as a unit** so that they become water secure, for which a 5-year Village Action Plan (VAP) co-terminus with the 15th Finance Commission period (2021-22 to 2025-26) is being prepared through the participation of the local community, focusing on **four key components**, i.e.,
 - i) augmentation and strengthening of local drinking water sources;
 - ii) in-village water supply infrastructure to make provision of tap water supply to every home and public institution like schools, anganwadi centres, gram panchayat buildings, etc.;

iii) greywater collection, treatment, and reuse; and iv) regular Operations and Maintenance (O&M) of water supply systems.

Water Security for Development

- Out of the total available freshwater in India, about **85% is used for agricultural purposes, 10% for industries, and only about 5% is used for drinking and domestic purposes.**
- All water is received from precipitation during a limited 10 to 40 rainy days or snowfall in the Upper Himalayas, and this water is stored either over the ground or under the ground, to be used during the whole year.
- Due to issues related to environmental conservation and anthropogenic factors, the construction of new dams to meet the increasing demand for water is becoming more and more difficult.
- Thus, to achieve water security, there is no choice except to focus on **rainwater harvesting, recharge of aquifers, deepening of water bodies, proper storage, and efficient utilisation.**
- It is even more important to **collect water from precipitation and keep it clean for use** considering that **256 out of the 734 districts are water-stressed already.** This requires village communities, the users/owners to start **water budgeting** to understand and **improve water-use efficiency** by changing water usage patterns, shifting to less water-consuming crops, and/or switching to micro-irrigation, i.e., drip and sprinkler systems.

Achievement

- In 2019, at the time of the announcement of JJM, out of total 18.70 crore rural households, **only**

3.23 crore (17%) households were having provision of tap water supply.

- The mission is making all-out efforts and as a result, currently, about **9 crore (46%) rural households in the country have assured provision of clean tap water supply.**
- Following the success of the mission, in Union Budget 2021, the government announced the launch of **Jal Jeevan Mission Urban** with an objective to bring clean water to 28.6 million households in 4,378 urban local bodies through tap connections.

Road Ahead

- There is a need to **adopt innovative technology** in the sector especially towards sewage treatment, in-situ combustion/energy production from human excreta, etc. in such a way to reduce the consumption of fresh water to flush tanks, often seen in urban areas.
- With the massive deployment of **sensor-based IoT systems** for measurement & monitoring of water supply, testing of water samples for quality and dashboard for data integration and analysis will ensure **transparency, assured service delivery, and grievance redressal.**

26) A case for community-oriented health services

Context

- The ASHAs (Accredited Social Health Activists) were among the six recipients of the WHO's **Global Health Leaders Award-2022** that recognises leadership, contributions to advancing global health and commitment to regional health issues.

Genesis of ASHA Programme

- India launched the **ASHA programme in 2005-06** as part of the **National Rural Health Mission.**
- Initially rolled out in rural areas, with the launch of the **National Urban Health Mission in 2013**, it was **extended to urban settings** as well.
- ASHAs are **primarily married, widowed, or divorced women between the ages of 25 and 45 years from within the community.** They must have **good communication and leadership skills; should be literate with formal education up to Class 8**, as per the programme guidelines.
- Each of these volunteers work with a population of nearly 1,000 people in rural and 2,000 people in urban areas, with flexibility for local adjustments.
- The core of the ASHA programme has been an intention to **build the capacity of community members** in taking care of their own health and being partners in health services.

Role of ASHAs

- The ASHA selection involves key village stakeholders to ensure community ownership for the initiatives and forge a partnership.
- The ASHAs coming from the same village where they worked have an aim to **ensure familiarity, better community connect and acceptance.**
- The idea of having activists in their name is to reflect that they are the **community's representative in the health system**, and not the lowest-rung government functionary in the community.
- Public health experts have unusual consensus that ASHAs have become **pivotal to nearly every health initiative** at the community level

and are integral to demand side interventions for health services in India.

Challenges Faced by ASHA Workers

- ASHAs do **not have a fixed salary**.
- They **do not have many opportunities for career progression**.
- Though **performance-based incentives** are supplemented by a **fixed amount** in a few Indian States, the **total payment** continues to **remain low and often delayed**.

Way Forward

- Indian States need to develop **mechanisms for higher remuneration** for ASHAs. The performance-based incentives should not be interpreted that ASHAs, no matter how much and how hard they work, need to be paid the lowest of all health functionaries. If they **work more**, the system should allow them to be paid **more than even regular government staff**.
- It is time that in-built institutional mechanisms are created for **capacity-building and avenues for career progression** for ASHAs to move to other cadres such as **Auxiliary Nurse Midwife (ANM), public health nurse and community health officers** are opened.
- Extending the benefits of **social sector services** including **health insurance** (for ASHAs and their families) should be considered.

- The possibility of ASHAs automatically being entitled and having access to a broad range of social welfare schemes needs to be institutionalised.
- While the ASHA programme has benefitted from many internal and regular reviews by the Government, an **independent and external review of the programme** needs to be given urgent and priority consideration.
- There are arguments for the **regularisation of many temporary posts** in the National Health Mission and making ASHAs **permanent government employees**.
- Considering the **extensive shortage of staff** in the workforce at all levels, and more so in the primary health-care system in India, and an ongoing need for functions being undertaken by ASHAs, it is a policy option that is worth serious consideration.

Conclusion

- The WHO award for ASHA volunteers is a proud moment and also recognition of every health functionary working for the poor and the underserved in India.
- It is an acknowledgement of the role and the relevance of people-centric primary health-care services.

Model Questions

1. Can Payment for Ecosystem services drive the conservation effort and thereby help in achieving the sustainable development goal? Discuss.
2. Degradation of soil is an issue that India is yet to be tackled. Critically analyse.
3. Can UNESCO's recommendation on the ethics of artificial intelligence be similar to its declaration on the human genome and guide the world countries? Critically analyse.
4. There is an increasing trend in the government to shift from permanent employment to fixed term employment. Substantiate it with data and mention the effects of the same.
5. Critically analyse the potential of India to become a leader in global supply chain with reference to MSME's.
6. Reducing hidden hunger can help in achieving the SDG goals. Substantiate with NFHS 5 data.
7. Discuss the opportunities and challenges faced in increasing the marriage age of women.
8. Petty patents can boost the competitiveness of the Indian innovation ecosystem. Substantiate with best practices around the world.
9. Digital India is the backbone of "India's techade". Discuss
10. Discuss how urbanization can bring forth the needed change in the socio-political-economic sectors in India.
11. What are the recent amendments to the Medical Termination Act? Critically examine its efficacy in assuring reproductive rights of women.
12. India has to redraw its focus on bringing energy security in the country. Analyse
13. How springs play an important role in preserving Himalayan ecosystem? Discuss the challenges associated with their conservation.
14. Critically analyse the role of 73rd Amendment Act in empowering rural self-governance.
15. Modern technologies like blockchain, cloud computing, and artificial intelligence work based on the data stored. With estimates that India will become the largest country in terms of population, it can generate more data. In the above context can India become a world leader in these technologies? Comment.
16. Critically analyse the role of Mission Karmayogi in the capacity building of civil servants..
17. Insurance penetration is less than the global average in India. With the government promoting insurance schemes, can India achieve universal insurance penetration in the country? Analyse.

18. Analyse the usage of NFT in various spheres of life and discuss how NFT is different from crypto currencies.
19. Ayushman Bharat is the flagship programme of the government of India. Explain in detail the facilities availed under the scheme.
20. How can the NITI Aayog's National Strategy for Artificial Intelligence help in the development of the AI Ecosystem in India?
21. India is improving its performance in the Global Innovation Index. In this context, analyse how deep tech startups can contribute to the Indian economy.
22. Tourism sector has unlimited potential in India. Can it act as a reviver of the Indian economy? Illustrate with reference to rural tourism.
23. What are the advantages of central bank digital currency over cryptocurrencies? Can it replace the existing cryptocurrencies? Comment.
24. New Education Policy 2020 is in conformity with SDG goal 4. It intends to restructure and reorient the education system in India. Critically examine.
25. What are the salient features of Jalshakti Abhiyan launched by the Government of India for water conservation and water security?
26. Discuss the role of ASHA workers in community building aspects with reference to the Health ecosystem.