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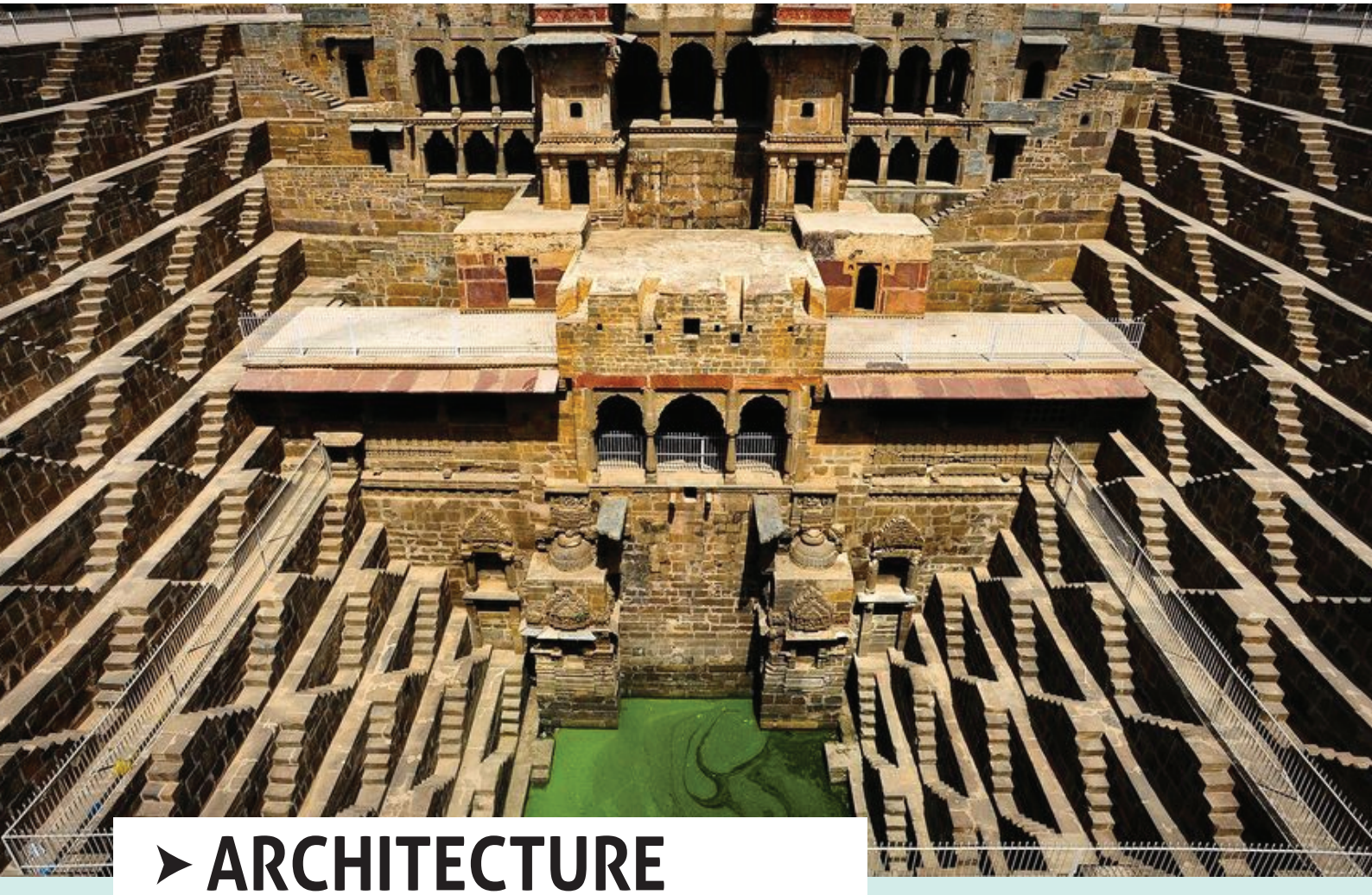

- ARCHITECTURE
- E-GOVERNANCE

E-Governance

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ARCHITECTURE

Chapter 1: Re-structuring Urban Galaxies

When we see the map of India, we realise a unique characteristic -there is a hierarchical network of dots of varied sizes with names of large metropolises, cities, and towns. They appear like `urban galaxies' - with naturally developed scales between entities, interconnected and located within easy reach. Further exploration suggests that these networks have their unique lifestyles, and unique pattern of habitat based on local resources, climate, and available characteristics of land. The connections and the spread of the developments appear like a 'biological' growth, with adaptation, mutation and replication after a certain growth tipping point that are essential for sustenance and preservation. These multi-nodal conglomerates expand infinitely absorbing smaller entities on the way and obliterating their strengths.

Sustainable development in Indian cities and towns

- Sustainability ensures long-lasting development without becoming unduly centralised similar to a biological order, therefore, we should consider a way that replicates and triggers the creation of another similar or mutated unit.
- Due to our development focus of concentrating around one place/city, all the institutions and employment opportunities, we are denuding the smaller towns in the region of their small-scale crafts and industries, and encouraging migration and overburdening the mega-cities- which will eventually get crushed under their own burden of management, complexity, and affordability.
    - Expansion means larger distances, and more time and energy to commute for living, working, or cultivating the mind and the spirit.
- By improving the infrastructure, the functioning of megacities and metropolises can be greatly improved.
- Organically developed sustainable interdependent habitats will necessarily have characteristics like empty tracts between entities, shorter movements linked by locally-developed transport systems and a few access points to heavy motorised traffic.

Lessons in Planning we need to lean into

Planning is not merely physical growth, but also spiritual and cultural growth, all hinged on the availability of resources.

- Natural network of important water bodies with a water supply and irrigation systems, and the forests and animal life.
- Non-motorized transport that encourages greener, quieter, and less polluted habitats
- There was always a hierarchy for open spaces at every level where people would interact.
- Each area had specific culturally oriented rules which defined their needs and regulated the consumption of resources for that purpose. Similarly, daily, weekly, monthly and seasonal markets suggest a very different notion of ` economies of scale ' , both for production and consumption. One never exceeds the other and they are always in balance.

It is a transformation of scarce resources into multiple alternative uses expressing a deliberate attempt to design relatively small, capital-saving, environment-friendly techniques of using all the resources including human energy. Also, this could not have been possible without an equally appropriate funding strategy and here we find the traditional way of joint share-holding with responsibility. We can find examples of this in our most successful cooperative movements, for e.g., in the milk sector like Amul in Gujarat, in the farming sector in different developments in Punjab.

We need to `miniaturise' our cities, make them more compact. One of the ways is to think of them as `walkable cities.'

- Gandhiji's charkha was an ingenious single solution involving every family member in their different free times, but also being socially productive and culturally relevant.
- Developing smaller towns of around one lakh population as growth centres and developing them as magnets will give other villages and smaller habitations the chance to learn, earn and develop without sacrificing their time and energy in communication and travel — preferring to stay nearby our parental region means enrichment in a community for family and individual life.

Central Vista Redevelopment Project

- Intends to construct a triangular-shaped Parliament building next to the existing one, construction of the Common Central Secretariat, and revamp of the 3 kilometres long Rajpath from Rashtrapati Bhavan to India Gate.
- Includes the conversion of the North and South Blocks into museums and the development of Central Vista Avenue.
- To accommodate the offices of various ministries, 87 storied buildings will be built for the Common Central Secretariat.

Note:

- The two-kilometre stretch from India Gate to Rashtrapati Bhavan, part of the revamped Central Vista Avenue in Delhi was renamed Kartavya Path.
- The renaming of Rajpath as 'Kartavya Path', or 'Duty Road', symbolises the emphasis on duties over rights.
- The statue of Netaji Subhas Chandra Bose is installed in the same. The granite statue is a fitting tribute to the immense contribution of Netaji to our freedom struggle and would be a symbol of the country's indebtedness to him.
- **Significance:** Abandonment of slavery mentality which is a continuous journey of determination till the goal of freedom of mind and spirit is achieved.

Read more on the Central Vista Project.

Chapter 2: Indian Approach to Conservation - Development of Historic City Centres

India's monuments are an irreplaceable and significant asset for the nation and its people with associated emotional, religious, economical, historic, architectural, and archaeological values amongst others. Their conservation efforts require craftsmen to use traditional materials, tools, and building techniques and can also become a significant employers. Unlike the West, we in India are fortunate that our craft traditions have survived to the present times, and it is recommended an emphasis on a craft-based approach to conservation as well as modern public buildings.

Conservation Approach:

The Archaeological Survey of India is taking several steps to ensure long-term, sustainable preservation of our nation's heritage in a manner that is based on increased awareness amongst the public of the significance of our heritage and increased involvement of civil society in the preservation effort.

- At various instances, well-meaning past repairs were carried out using inappropriate modem materials not only compromising the original design intention but also setting in a process of accelerated decay.

- In the shift from the traditional to the `cheap' modern, we have lost architectural craft skills that had the capability of creating millions of man-days of employment while ensuring that our cities had a unique identity as well as a higher quality of life.

The Way Forward

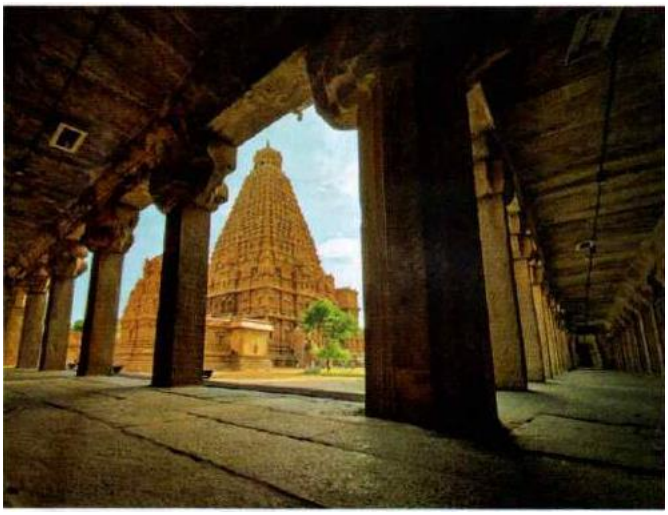
- The craftsmen should also once again become stakeholders in the preservation effort and continue to impart traditional skills to their future generations who are moving to other trades in large numbers.
- Different agencies of the government need to partner with academic institutes/civil society and local communities.
- The success of the Nizamuddin Urban Renewal has demonstrated a model approach for community-based conservation.
    - Not only have several protected monuments in the dense Hazrat Nizamuddin Basti undergone conservation but the conservation effort has been coupled with providing education, health services, vocational training to create economic opportunities for local youth and women, sanitation, urban improvements including landscaping neighbourhood parks and street improvements, revival of a 700-year Living culture centred around Sufism and Qawwali, creating performance spaces, amongst other aspects.
    - It is hoped that the community of Hazrat Nizamuddin Basti will now play a pivotal role in the preservation of the built heritage that stands amidst their neighbourhood and that conservation culture can be used as a tool for development in several other similar historic urban areas of India.
- For the Nizamuddin model for `Conservation Led Development' to be replicated requires significant public-private partnership with NGO's, Resident Welfare Associations, grant-making organisations corporate sectors, Municipal Councils/Corporations to come together with a long-term vision.
    - This initiative has global lessons but has been possible with a multi-disciplinary team creating customised, contextual and local solutions all aimed at improving the quality of life for inhabitants with heritage assets restored and well taken care of.
- In order to enhance the visitor experience and attract younger generation of visitors to major sites or ensembles of monuments state-of-art displays using new media are planned. Examples from across the world demonstrate that significant modem architecture can revitalise the economy and generate major visitor interest in heritage sites.

Conservation and development should go hand-in-hand, but conservation if any such development can be sustainable in perpetuity.

Chapter 3: Brihadeeshwara Temple -A Stand-Alone Marvel

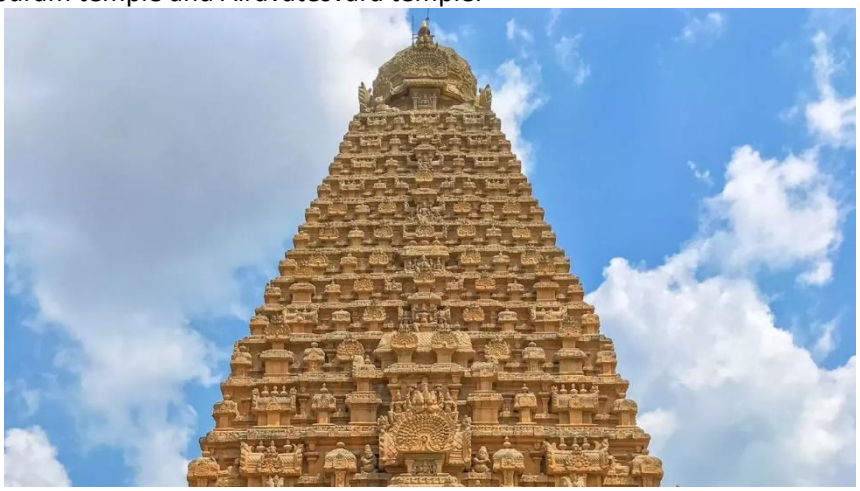
Introduction

- The Big Temple of Thanjavur (Tanjore- the cultural capital of the Kaveri delta region) is a stunning monument that speaks volumes about the architectural mastery of the Chola era.
    - The city and its cultural legacy are the end product of three vibrant kingdoms that have ruled this part of Tamil Nadu over the past millennium-the Cholas, the Vijayanagar, and the Maratta kings
    - Rajaraja-I to take upon himself this mammoth task of constructing what probably should have been the grandest humble offering to Siva.



The Temple

- Home to one of the largest Shiva Lingas of the country.
- A majestic Nandi (bull) stands guard over the temple. This is the **second largest Nandi** in India and is carved out of a single stone.
- The temple is recognised as a part of the **UNESCO World Heritage Sites**.
- Known as the "Great Living Chola Temples", along with the Chola-era Gangaikonda Cholapuram temple and Airavatesvara temple.



Pic source: Tamil Nadu Tourism

The Architecture

- The temple complex measures about 244 metres on the east-west and 122 metres north-south and is placed inside what is referred to as the 'Sivagangai little fort'.
    - This fortification is an addition taken over during the renovation by Sevappa Nayaka around the 17th century.
- There is also a moat (Long wide Channel) running around this fortification which should be crossed to enter the temple complex.
- There are sub-shrines built in between cloistered halls housing shrines for the ashtadikpalakas (deities guarding the 8 directions), Lord Ganesha, and the temple yagasalai.
- On the southwest corner is the shrine of Ganesha, built during the times of Sarabhoji II.
- The shrine built during the times of Rajaraja, mentioned in the inscription as Parivara-Alayattu Pillaiyar was vandalised and hence the Maratta king built a new structure for him.
    - This is an extremely ornate sculptural gallery that houses Subramanya along with his consorts Valli and Devasena.

- The door guardians of this shrine, sculpted out of a very shining granite stone, and the stone tub installed to collect ablution water are noteworthy for their workmanship. The pillared hall in front of this shrine has portrait paintings of the royal members of the Maratta kings.

The Vimana:

- Inside the temple, there is a temple tower famous as Vimana which has an elevation of 66 metres. This Vimana is **one of the tallest temple towers** on the earth.
- The Vimana stands on a square base measuring 29 metres. The proportioning of the successive tiers of the Vimana is the reason behind the visually appealing appearance of the structure.
- The pyramidal Vimana is corrugated with appropriate motifs, design features, and sculptures of various deities. The pinnacle is a spherical dome-like shikhara, on which sits the 12-foot tall gold-plated kalasam.
- Epigraphic evidence says that Rajaraja I had presented a gold-covered finial to be fixed on the Vimanam on the two hundred and seventy-fifth day of his twenty-fifth regnal year, ie., 1009-10 CE.
- According to the agamas, the Vimanam on top of the sanctum sanctorum is supposed to represent sookhmalinga.
- It is considered a sacred mountain and hence Rajaraja describes this Vimana as the 'Dakshina Meru', the revered Meru mountain of the south. Hence, the topography of Kailasa has been recreated as a stone bas-relief on the eastern facade, decorated with the daily scene at Kailasa, representing the divine family of Siva with Devi, Ganesha, Muruga, Nandi, the rishis, and other celestials.
- The sanctum sanctorum is approached by a series of mandapams from the eastern side.
- The antarala is accessed from a fleet of stairs on the north and south sides. This is where devotees stand to offer their worship in front of Sri Rajarajeshwaram Udaiya Paramaswami, as the deity was called by Rajaraja himself.

Nandi Pavilion

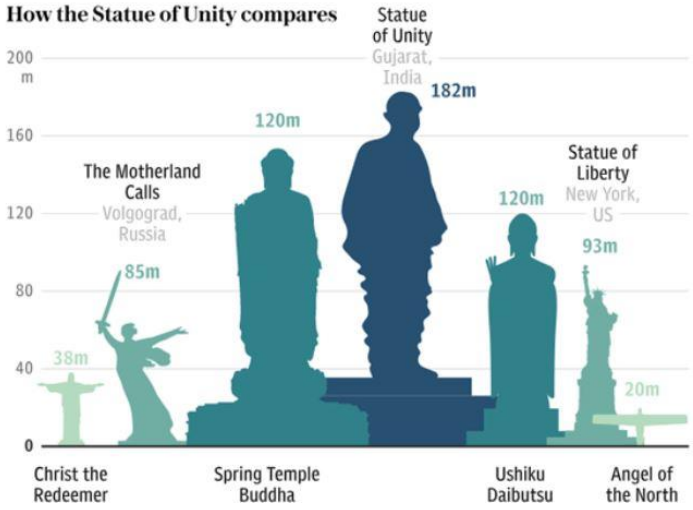
- An equally interesting feature of the temple is the huge monolithic Nandi, the sacred bull, in front of the main shrine. The pavilion on which the Nandi sits is by itself a later-period addition.
- The monolithic Nandi from the Nayaka period was brought in to replace the old Nandi installed by Rajaraja.

- The mandapam was also constructed by them and the ceiling of this mandapam was painted with frescos carrying European influences.
- The Nandi installed by the Cholas is now placed on the south side of the cloistered hall running around the compound wall.

Chapter 4: Statue of unity – A tribute to Ironman

The Statue

- The Statue of Unity is built in honour of Sardar Vallabhbhai Patel on **Sadhu Hill.**
- Standing at **182 meters** in the middle of **river Narmada** at **Kevadia in Gujarat's** Narmada district, the Statue of Unity is the **tallest statue** in the world– much taller than the 153 metre **Spring Temple Buddha in China** and almost twice the size of the **Statue of Liberty in New York**.
- One can have a view of the **Satpura and Vindhyachal mountain ranges,** which also form the point where **Madhya Pradesh, Gujarat and Maharashtra meet.**
- Visitors can also get a distant view of the 12-km-long **Garudeshwar Reservoir** which is located downstream from the Narmada dam.
- Man Behind the Statue: **Shri Ram Vanji Sutar,** the 93-year-old sculptor.
- In January 2020, it was added to the '**Eight Wonders'** of the Shanghai Cooperation Organization (**SCO**).



Sardar Vallabhbhai Patel

The birthday of India`s Iron Man is being observed as **Rashtriya Ekta Diwas or National Unity Day** since the year 2014.

- First Deputy Prime Minister of India
- Widely considered to be the architect of modern India, Sardar Vallabhbhai Patel played an important role in the integration of all the princely states (especially Hyderabad, Junagadh and Kashmir) into the Indian Union after the British left India in 1947.
- Provided good governance as an able administrator in diverse fields like modern farming and empowerment of tribal communities
- Organised peasants from Kheda, Borsad, and Bardoli in Gujarat in non-violent civil disobedience against the British Raj, becoming one of the most influential leaders in Gujarat.
    - He earned the title of "Sardar" after spearheading a no-tax campaign by peasants at Bardoli in Gujarat.

    - He also led the relief and rehabilitation operations when Gujarat was ravaged by floods and worked tirelessly during a plague outbreak in Ahmedabad.
- He is also remembered as the "patron saint of India's civil servants" for having established the modern all-India services system. "A civil servant cannot afford to, and must not, take part in politics. Nor must he involve himself in communal wrangles. To depart from the path of rectitude in either of these respects is to debase public service and to lower its dignity," he had cautioned them on April 21, 1947.
- Social work: Untouchability, Women empowerment, Caste discrimination, alcohol ban etc. in Gujarat.

Acknowledging the monumental contribution of Patel in nation building, Jawaharlal Nehru said, "History will call him the builder and consolidator of new India."

The remarks Patel made during the Quit India Movement are also relevant today. He said: "We have to shed mutual bickering, shed the difference of being high or low and develop the sense of equality and banish untouchability. We have to live like the children of the same father".

Must Read: Role of Sardar Vallabh bhai Patel in Uniting the Nation

Chapter 5: Universal Public Designs

In a heterogeneous society, the goal of every state is to provide equal access to its citizens. When it comes to physical-public domain design, infrastructure for persons with disabilities assumes another dimension of architecture. It has certain implications from the special-need quotient of demography, and disability as an asocial construct. The international community is building competencies for delivering quality governance on universal designs. India too has initiated Sugamya Bharat Abhiyan as a credible step towards sustainable goals in universal designs.

Sugamya Bharat Abhiyan

- A nationwide major campaign to achieve universal access that will enable persons with disabilities to have access to equal opportunity and live independently and participate fully in all aspects of life in an inclusive society.

About United Nations Convention on the Rights of Persons with Disabilities (UNCRPD)

- The Convention was adopted by the General Assembly in December 2006 and it came into force on in May 2008.
- Parties to the convention are required to promote, protect, and ensure the full enjoyment of human rights by persons with disabilities and ensure that persons with disabilities enjoy full equality under the law
- It is intended to protect the rights and dignity of persons with disabilities.
- The convention is monitored by the Committee on the Rights of Persons with Disabilities.

Universal Design

- When administration consider people with all kind of abilities and their accessibility issues while building public utilities and spaces, it can be coined as universal design.
    - Universal or inclusive design provides for a holistic approach to designing public spaces and utilities.
- The UN Convention on the Rights of Persons with Disabilities (UNCRPD) inspires and focuses on universal design.

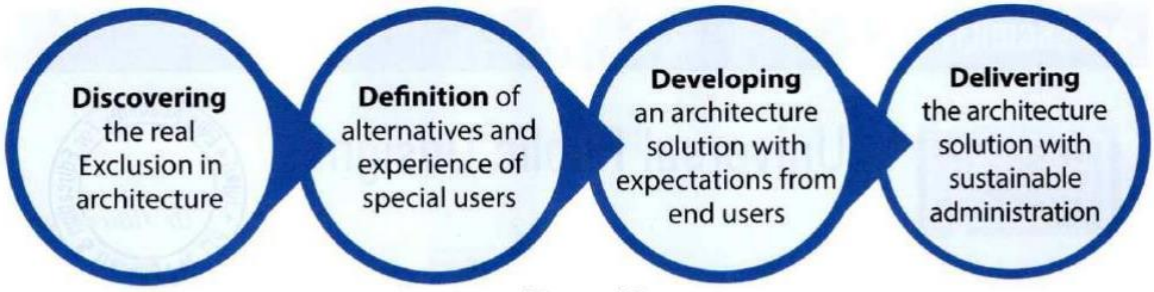
  - It highlights the sovereign government's responsibility to make improvements since accessibility is a right.
  - Member States are responsible for systematically removing obstacles and creating inclusive solutions for everyone, irrespective of their functional capacity, characteristics and preferences.
- In Nordic countries, for instance, universal design is a good example of the vision for inclusive growth.
- There are three crucial aspects of inclusive designs in any situation.
  - Social responsibility or commitment of the entity that evolves strategies for inclusion.
  - The reward to such organisations which initiate such changes.
  - The sustainability of such initiatives.

Challenges

- A major challenge in implementing such changes is on emphasizing the value of such initiatives at the policy level and at the execution level.
- Inclusive design is about creating buildings and spaces, streets, public parks, gardens, etc., that are really comfortable and easy for all of us to use.
- Another challenge in providing inclusive architecture is construction workers' lack of knowledge about the whole structure, and issues of accessibility fail to bring those minute changes for universal designs.
- Sugamya Bharat has been formulated by considering all possible lacunae. A country with such a diverse structure demands a systemic strategy to tackle the existing challenges.

Approaches and Principles

- A piece of architecture should provide an equitable use for every person irrespective of their differential ability.
- A piece of architecture should possess the quality of flexibility in use.
- A piece of architecture must have quality-simple and intuitive use.
- A piece of architecture should have perceptible information about its layout.
- A piece of architecture should possess the quality of tolerating errors if people commit mistakes due to their disabilities.
- A piece of architecture should possess the quality of usage or access and should demand low physical effort.
- A piece of architecture should possess adequate size and space for use.



Basis of Universal Designs

Image Source: Yojana

The Implications

- In all the domains of public work, an integrated approach by incorporating the end users' feedback can deliver a quality of governance to people with differential abilities.
- An accessible physical environment benefits everyone, not just persons with disabilities.

- Accessibility eliminates obstacles and barriers to indoor and outdoor facilities including schools, medical facilities, and workplaces.
- Universal design will also indirectly help the state in soliciting the global community to enjoy the iconic tourist spots in India.

"We shape our buildings and afterwards, our buildings shape us." -Winston Churchill

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E-GOVERNANCE

Chapter 7: Bridging the Digital Divide

The **Digital Divide, or the digital split**, is a social issue referring to the differing amount of information between those who have access to the Internet (especially broadband access) and those who do not have access.

- E-Governance is a process through which public services are made available and accessible to the common citizen through common service delivery outlets. It is ICT-friendly and establishes connections between providers and users of government services.
- It increases the transparency, efficiency, and reliability of all operational processes.

Significance of Digital Divide

- **Political:** In the age of social media, political empowerment and mobilization are difficult without digital connectivity.
- **Health and Governance:** Transparency and accountability are dependent on digital connectivity. The digital divide affects e-governance initiatives negatively.
- **Social:** Internet penetration is associated with greater social progress of a nation. Thus, digital divide in a way hinders the social progress of a country.
    - Rural India is suffering from information poverty due to the digital divide. It only strengthens the vicious cycle of poverty, deprivation, and backwardness.
- **Economic:** The digital divide causes economic inequality between those who can afford the technology and those who don't.
- **Educational:** The digital divide is also impacting the capacity of children to learn and develop. Without Internet access, students cannot build the required tech skills.

Achieving affordable and inclusive internet for all

The following parameters are significant in achieving affordable and inclusive internet for all:

- *Infrastructure* is crucial for promoting innovation and enhancing development.
- *Pricing* can have a major impact on the accessibility of the internet.
- *Language and Technical illiteracy* are barriers to accessibility to the internet, especially for women and rural people.
- *Information regarding accessibility* is crucial for designing effective policies.

Digital divide as an impediment to e-governance initiatives

- **Infrastructure accessibility:** without the infrastructure like internet connectivity, broadband connections, the e-governance projects wouldn't reach the entire population. E.g. CSC, DBT schemes would be successful only with internet penetration to every parts of the country.
- **Digital literacy:** low digital literacy would hamper the effective use of e-governance initiatives. E.g. Inability to use the banking applications, Jan Dhan initiative suffer due to subsequent zero balance in opened accounts.
- **Perception level:** Without proper knowledge about technology, there is a scepticism shown by the users making the e-governance initiatives less efficient. E.g. the perception of risk in using internet banking/ATM make many people still preferring withdraw or transfer of funds by visiting a bank branch.
- **Unequal utilisation:** The use of e-governance initiatives is more in Urban areas and hence it further creates a divide in utility of government schemes.
- Digital divide **results in high dependency of beneficiaries** on middlemen and thereby vulnerable to misuse. E.g. theft of login credentials, proxy booking in schemes like PM Ujwala yojana and so on.

- **Misuse:** Digital divide would further the malicious use of technology tarnishing the e-governance initiatives. E.g. Without digital literacy, fake news being circulated in social media platforms couldn't be curbed. The genuine information dissemination through e-governance initiatives suffers.
- **Digital divide would take away any incentive for improvisation of e-governance initiatives** which can happen only when the citizens are aware of the technology and suggest for reforms through feedback. E.g. In spite of citizen charter being introduced 2 decades back, there is hardly any improvement in service delivery as per 2nd ARC report.
- Lack of digital literacy will lead to corruption, conning of the vulnerable and without proper knowledge, the grievance redressal suffers thereby further eroding the trust of public in e-governance initiatives.
- Digital divide is detrimental to trade, people to people contact E.g. the benefit of e commerce cannot be realised without internet penetration.

Digital India Programme

The government of India is implementing the Digital India programme to transform India into a knowledge-based society and economy by ensuring digital access, digital inclusion, and empowerment. Digital India has dramatically reduced the distance between the government and citizens. It is an umbrella programme covering multiple projects/schemes of various departments/ministries. Some of the significant initiatives are:

- **E-Kranti:** It aims to revolutionize electronic service delivery.
- **Common Service Centre (CSC):** CSCs provide more than 400 digital services to rural citizens through village-level entrepreneurs.
- **Unified Mobile Application for New-age Governance (UMANG):** It is a mobile-based service providing accessibility to approximately 22,000 bill payment services and over 1570 government services.
- **e-District Mission Mode Project (MMP):** It benefits citizens by delivering various e-services like certificates (birth, death, caste, income, etc.), consumer services, electoral services, etc.
- **Digilocker:** It provides paperless availability of public documents.
- **Unified Payment Interface (UPI):** It is the leading digital payment platform in the world integrated with over 330 banks.
- **Co-WIN:** It is an open platform for scheduling and management of Covid-19 vaccination.
- **My–Gov:** It is a citizen engagement platform that is developed to facilitate participatory governance.
- **Meri-Pehchan:** It is a single sign-on platform to provide citizens with ease of access to the government portal.
- **Direct Benefit Transfer:** 315 schemes across 53 ministries are offering Aadhar-enabled digital benefit transfer and so far approximately 25 lakh crores have been disbursed through it.
- **Diksha:** It is a national-level educational platform for both students and teachers.

Initiatives of State Government

- **Sourkaryan and E–Seva**: Project of the government of Andhra Pradesh to provides the facility for a citizen to pay property taxes online.
- **The Gyandoot Project:** It is the first ever project in India for a rural information network in the Dhar district of Madhya Pradesh which has the highest percentage of tribes and dense forest.
    - The project was designed to extend the benefits of information technology to people in rural areas by directly linking the government and villagers through information kiosks.

- **Seva Sindhu**: The Karnataka government launched a digital platform "Seva Sindhu" to address the issues of the common citizens in order to strengthen the ecosystem for government services.

Way Forward

- **Addressing the divide**: Addressing the digital divide requires special, urgent and focused efforts of the government.
    - A large investment needs to be made, year after year, in digital infrastructure.
    - The **establishment of a Broadband Infrastructure Fund** with a large corpus from private, multilateral and government sources, including spectrum auction revenues, is a must.
- **Digital Empowerment Foundation** has a **digital literacy and mentorship initiative** that targets 100 tribal girls across five states to link them with 25 urban women known for their leadership skills or roles. The girls are provided with a smartphone and connectivity.
- **The urban women connect** with their mentees weekly via video calls to make them digitally literate. Many of these girls have now become entrepreneurs.
- India can set up a **digitally integrated ecosystem** in rural areas with a community wireless network and an information resource centre.
    - This ecosystem can enable **digital interventions to improve the quality of education**. And in times like this pandemic, these centres can provide digital classrooms and online education.
    - It will help in reaching out to students, irrespective of lockdown, curfew or any natural calamity. This outreach will not only serve as a learning platform but also as essential information-sharing and awareness generation.
- **Internet infrastructural support and access to information** continue to be crucial in supporting our underserved populations in these critical times.
- **Panchayats have to be responsible to deliver information and services** across 29 state subjects, were promised fibre optic lines under government's programme.
- It is that policies as well as crises and emergency response should have a digital inclusion plank to mitigate the fallouts for vulnerable populations and ensure the availability of adequate safety nets.

Digital divide is an **emerging reality in India** and heavy cost to access new technology will set the stage for digital divide i.e., **digital discrimination**. Digital illiteracy is on a constant rise in India. Until plethora of emerging issues due to digital gaps are not addressed timely, **affordable and sustainable internet society will appear as sheer chimera**.

Chapter 8: Technology Integration for Quality Education

With such revolutionary impact of technology, education sector could not be left untouched and during the COVID-19 pandemic, the pace of integration of technology in teaching learning processes has increased exponentially. During the pandemic, digital technology played an indispensable role in holding the civil society together by supporting the provision of basic-fundamental services in the field of health, education, and service sector. National Education Policy (NEP) 2020 gives utmost importance to technology and states that "The thrust of technological interventions will be for the purposes of improving teaching-learning and evaluation processes, supporting teacher professional development, enhancing educational access, and streamlining educational planning, management, and administration etc. It also recognizes and addresses the issue of a digital divide and elucidates that `'the benefits of online/digital education cannot be leveraged unless the digital divide is

eliminated through concerted efforts, such as the Digital India campaign and the availability of affordable computing devices. It is important that the use of technology for online and digital education adequately addresses concerns of equity."

Technology plays an important role in:

- Improving the classroom process of teaching, learning and evaluation
- Aiding teacher training.
- Improving access to education.
- Improving the overall planning, administration and management of the entire education system.
- Looking for matter beyond the textbooks is no longer a challenge with respect to time and resources anymore.
- Classroom based learning

Interventions in the Governance of education

Various governance-related interventions are adopted by the Government for improving the efficiency, effectiveness, and quality of the schooling system. Some of these measures include:

- **UDISE+**: In 2012-13, the Ministry of Education initiated the Unified District Information System for Education (UDISE). UDISE+ is an upgraded version of it, which is collecting data since 2018-19. It provides robust, real-time, and credible income for effective evaluation and evidence-based interventions in the school education system.
- **Performance Grading Index (PGI):** It is a tool for evaluating the status of school education and catalyzing transformational change in States/UTs on the basis of performance across several indicators. It grades all states and Union Territories on the basis of 77 indicators and helps in identifying gaps and designing appropriate interventions to address them.
- **Online survey platform for National Curriculum Framework (NCF):** It is being prepared by NCERT to make education more experiential, holistic, inquiry-based, discovery-oriented, learner-centric, and enjoyable.
- **NDEAR (National Digital Education Architecture) and Vidya Samiksha Kendra:** The central idea of NDEAR is to facilitate achieving the goals set by NEP 2020, through a digital infrastructure for innovations in the education ecosystem, ensuring autonomy and participation of all the relevant stakeholders. Vidya Sameeksha Kendra has been established at the national level to leverage data and technology to bring a big leap in learning outcomes.
- **PRABANDH (Project Appraisal, Budgeting Achievements, and Data Handling):** It was launched in 2020 under the ambit of Samagra Shiksha to enhance the efficiency and management of centrally sponsored integrated schemes.

Government Initiatives for improving the quality of education

- **PM e-Vidya:** It is a comprehensive initiative that ensures access to digital education through a multi-modal approach.
    - The Ministry of Education (MoE) platform DIKSHA has been declared as a 'One Nation, One Digital Platform' which can be accessed by learners and teachers across the country. It presently supports 30 languages.
    - DIKSHA hosts nearly 6,500 textbooks and over 3.01 lakh digital content including audio-visual content, interactive courses, practice material, etc.
    - For children with special needs, nearly 2970 Indian Sign language-based content, Mukta Vidya Vani (an audio streaming podcast) and Radio Vahini with 24×7 broadcast and talking books for learners with blindness and low vision have also been prepared.

    - Twelve PM eVidya channels for each class deliver class-wise content for each class 24×7.
- NISHTHA (National Initiative for School Heads' and Teachers' Holistic Advancement): It is an integrated training programme that aims at the holistic development of teachers.

Initiatives announced in the Budget 2022-23

To expand the scale and scope of digital education and to ensure equity among students considering the diversity, device penetration, and complexity of India, the government has adopted several measures:

- Launch 200 TV Channels: To overcome pandemic-induced learning gaps and build a resilient mechanism of education delivery
- Nearly 750 virtual labs for science and mathematics and 75 skilling e-labs would be launched during 2022-23 for providing a quality practical and critical-thinking ecosystem.
- High-Quality e-content in all spoken languages will be developed for delivery via the internet, mobile phones and radio through Digital Teachers.

Technology will play a crucial role in developing lifelong learners that have an innate curiosity, drive to explore, and are motivated in the pursuit of knowledge. An affordable, equitable, inclusive, and integrated digital ecosystem is required to facilitate and sustain lifelong learning.

Chapter 9: e-Governance

In Governance

While Governance relates to safeguarding the legal rights of all citizens, an equally important aspect is concerned with ensuring equitable access to public services and the benefits of economic growth to all. Governance basically associated with carrying out the functions and achieving the results through the utilization of ICT (Information and Communications Technology) is E-governance.

Benefits of leveraging ICT in governance

- **Transparency**: Use of ICT makes governing profess transparent. All the information of the Government would be made available on the internet. The citizens can see the information whenever they want to see.
- **Accountability**: Once the governing process is made transparent the Government is automatically made accountable.
- **Improved Customer Service**: E-Government allows redeploying resources from back-end processing to the front line of customer service.
- **Data management**: ICT provides efficient storing and retrieval of data, instantaneous transmission of information, processing information and data faster than the earlier manual systems.
- **Decision making**: Speeding up governmental processes, taking decisions expeditiously and judiciously, increasing transparency and enforcing accountability. It also helps in increasing the reach of government – both geographically and demographically.

Various initiatives by government to leverage ICT are

Government to Citizen (G2C) Initiatives:

- **Computerization of Land Records**: In collaboration with NIC. Ensuring that landowners get computerized copies of ownership, crop and tenancy and updated copies of Records of Rights (RoRs) on demand.

- **Bhoomi Project**: Online delivery of Land Records. Self-sustainable e-Governance project for the computerized delivery of 20 million rural land records to 6.7 million farmers through 177 Government-owned kiosks in the State of Karnataka.
- **E-Seva (Andhra Pradesh):** The highlight of the E-Seva project is that all the services are delivered online to consumers /citizens by connecting them to the respective government departments and providing online information at the point of service delivery.

Government to Business (G2B) Initiatives:

- **MCA 21**: By the Ministry of Corporate Affairs. The project aims at providing easy and secure online access to all registry related services provided by the Union Ministry of Corporate Affairs to corporate and other stakeholders at any time and in a manner that best suits them.

Central government initiatives:

- **Immigration, Visa and Foreigner's Registration & Tracking (IVFRT**): India has emerged as a key tourist destination, besides being a major business and service hub. Immigration Check Post is the first point of contact that generates public and popular perception about the country, thus necessitating a state-of-the-art system for prompt and user-friendly services.
- **Public Distribution System**: Computerization of the PDS is envisaged as an end-to-end project covering key functional areas such as supply chain management including allocation and utilization reporting, storage and movement of food grains, grievance redressal and transparency portal, digitization of beneficiary database, Fair Price Shop automation, etc.
- **E-Courts**: A clear objective – to re-engineer processes and enhance judicial productivity both qualitatively and quantitatively to make the justice delivery system affordable, accessible, cost effective, transparent and accountable.
- **Direct Cash transfer**: To facilitate disbursements of Government entitlements like NREGA, Social Security pension, Handicapped Old Age Pension etc. of any Central or State Government bodies, using Aadhaar and authentication thereof as supported by UIDAI.
- **E-Kranti scheme**: This is project for linking the internet with remote villages in the country. This scheme will broaden the reach of internet services to the rural areas in the country.
- **Digital India Programme**: The Digital India would ensure that Government services are available to citizens electronically. It would also bring in public accountability through mandated delivery of government's services electronically; a Unique ID and e-Pramaan based on authentic and standard based interoperable and integrated government applications and data basis.

[NAM, Shagun portal, AirSewa portal, E-pashuhaat, DigiLocker system etc are other examples of service delivery through ICT.]

Benefits/ Outcomes of E-Governance

- Enhanced Transparency and Accountability.
- Expanded reach of Governance.
- Improved Public Administration.
- Enables Environment for Promoting Economic development.
- Improved service delivery in the form of better access to information and quality services to citizens.

In Health Service Delivery

The government of India has launched several health-related online services. For example:

- National Health Portal: It is a single point of access to health-related information for citizens.
- e-Hospital Management System: It tracks the delivery of patient care and diagnostic services.
- Mera Aspataal initiative: It captures patients' feedback for services availed by them.

Several mobile applications have also been launched like the Kilkari app, through which the government delivers messages pertaining to pregnancy and child care between the second trimester of the pregnancy till the child's first birthday.

Government's Initiative

- Various platforms have been launched for tracking service delivery.
    - Nikshay Platform: For tracking TB patients.
    - Ayushman Bharat – Health and Wellness Centre Portal: For monitoring the delivery of comprehensive primary healthcare services through Health and Wellness centres across the country.
- National Health Policy 2017 ushered in a new era of technology-enabled healthcare services that incorporates e-health, m-health, Internet of Things (IoT), etc.
- The launch of the National Digital Health Mission (NDHM) was announced that aims to create a mechanism to:
    - Process digital health data and facilitate its seamless exchange
    - Develop registries of public and private facilities, health service providers, laboratories, pharmacies, etc.
    - Support clinical decision-making
    - Offer services like telemedicine

Challenges with India's healthcare system

- India's healthcare system is an information-intensive sector that has remained largely impermeable to digital technology for a long time.
- Though considerable efforts have been made to leverage technology, there is inadequate interaction between them that leads to disjoint clusters of health information.
- Fragmented information about patient records restricts interoperability.
    - To tackle this issue NDHM has proposed a single health id and profile for every citizen.
- There are issues like duplication and inconsistency of data.
- An inadequate number of doctors and healthcare staff is another major challenge in India. Moreover, the quality and productivity of services is also an area of concern.
- The low presence of doctors is more visible in rural and remote areas of the country.

Significance of Technology in Healthcare

- A single dedicated portal for each citizen can minimize the need for repeat investigations and ensure informed decision-making by doctors.
- It can enable population-level data analytics in identifying emerging diseases and treatments.
- It can also facilitate geographical, demographical, and risk factor-based monitoring of health, followed by the design of targeted interventions. It could also give a head start in identifying people with comorbidities and implementing preventive health interventions expeditiously.
- An effective and efficient IT infrastructure can ensure data consistency across systems, eliminate duplication and minimize the reporting burden.
- It will also benefit the researchers in the evaluation of disease and its treatment.
- Digital health is a critical enabler for universal health coverage.
- It is estimated that in the coming decade, an incremental economic value of over USD 200 Billion can be unlocked for the health sector through rigorous and effective implementation of the NDHM.
- Technology can improve operational efficiency by strengthening supply chain performance and enabling the skilling of health professionals.
- The government's teleconsultation services like e-Sanjeevani have enabled diagnosis, treatment, and management of the disease.

- Another trend being observed on account of digitization is online training and education of medical professionals.

It is clear that India is moving towards the digital transformation of healthcare and looking at a future where connected care becomes the norm. The patients would no longer be constrained by geography due to the roll-out of the latest technologies.

In Increasing Farmers' Income

Agriculture's importance in India is difficult to overemphasize where it accounts for about 13 percent of the country's GDP and employs about 45 percent of its workforce. Digital applications can play a critical role in improving yields — as well as reducing costs and increasing the market value of crops — by making it easier for farmers to obtain finance, optimize agricultural inputs, and increase direct access to markets.

- A Centrally Sponsored Scheme namely National e-Governance Plan in Agriculture (NeGPA) was initially launched in 2010-11, which aims to achieve rapid development in India through use of Information & Communication Technology (ICT) for timely access to agriculture related information. In 2014-15, the scheme was further extended for all the remaining States and 2 UTs.
- Realizing the significance of new digital & emerging technologies, the Committee on Doubling Farmers' Income (DFI) has recommended further expanding and augmenting of the digital agriculture initiatives of Government of India.
- The report focused on modern management of agriculture viz. Remote Sensing; Geographical Information System; Data Analytics and Cloud Computing; Artificial Intelligence & Machine Learning; Internet of Things; Robotics, Drones & Sensors and Block-chain.

E-governance initiatives helping in increasing farmers' income can be seen from the following points:

Empowerment:

- **Strengthen and empower farming community**: ICT technologies can help for strengthening farming communities through wide networking and collaborations with various institutes, NGO's and private sectors. Further, farmers may enhance their own capacities through updated information and wide exposure to scientific, farming and trade community.
- **Empowerment of women**: In rural India, the percentage of women who depend on agriculture for their livelihood is as high as 84%. Women make up about 33% of cultivators and about 47% of agricultural labourers, making them an important client for ICT. It is recommended that appropriate digital strategies designed where Women Self Help Groups (like Jeevika in Bihar) can take advantage to enhance their competencies for its utilization.
- **Rural development**: Safe rural life with equivalent services to those within the urban areas, like provision of distance education, telemedicine, remote public services etc.
- **Digitization of Land Records**: Maintenance of land records and the availability of easily accessible land information. Some of the initiatives in various states include, Rajasthan: Apna Khata; Chhattisgarh: Bhuiyan; Haryana : Jamabandi; Himachal Pradesh : HimBhoomi; Karnataka: Bhoomi; Kerala; Madhya Pradesh; Odisha: Bhulekh; Uttar Pradesh; Uttarakhand: Dev Bhoomi and West Bengal: Banglar Bhumi

Enablement:

- **The timely availability of right information**: The timely information and practical solutions of the agricultural problems allows the farmers to adopt good agricultural practices, make better choices of inputs and to plan the cultivation properly. Its proper utilisation is indispensable for agriculture. Ex: Kisan Call Centres, M-Kisan etc.
- **Improve farm management and farming technologies**: Help farmers carry out economical farm management, risk management considering off-farm factors like environmental impacts, market access, and trade standards with IT based call web support analysis on optimum farm production, disaster management, agro environmental resource management etc., through tools like geographic Information systems (GIS), remote sensing for soil quality assessment.
- **Allows detection of animal disease**: Management and recovery choices of animal diseases enables the farmers to make quick decisions and safeguard their livestock from further health problems. Ex: National Animal Disease Referral Expert System (NADRES) which is a forewarning animal disease system.

Expansion:

- **Facilitate the outreach of agricultural extension system in the country**: ICT based initiatives can be taken for propagation of information, transfer of technology, procurement of inputs and selling of outputs in a way so that farmers can be benefitted.
- **Widen Market Access**: One of the major drawbacks in Indian agriculture is complex distribution channels for marketing of agricultural produce. Farmers do not get acquainted with the updated prices of commodities, proper place for selling their inputs and consumer trends also. ICT has the great potential to widen marketing horizon of farmers directly to the customers or other appropriate users for maximum benefit. This can improve a farmer's source of revenue; empower farmers for making good decisions about appropriate future crops and commodities and marketing channels to sell their produce as well as to get inputs
- **Initiate new agricultural and rural business**: like e-commerce (Ex: E-choupal, AGMARKNET) realty business for satellite offices, rural business, and virtual corporation of small-scale farms, Agricultural Commodity Trading through NCDEX, NMCE etc.
- NIC, apex body for digital India has a dedicated department for agriculture, which can be used to promote ICT in agriculture by providing cloud services and etc. Further, channelizing things through one gateway will also avoid duplicity of efforts.

Government Initiatives –

- Kisan Suvidha, a Digital India initiative, is a mobile app providing information to farmers. Farmers can be informed on the weather alerts, market prices, availability of seeds and fertilisers, agro advisories etc.
- Pusa Krishi is an app designed for farmers to use in the fields. It provides information on the weather so that farmers can take measures to save crops.
- mKISAN is a mobile based advisory service linked to call centres connected to research centres. Knowledge is disseminated to farmers that is timely, specific, holistic and needs based.
- Soil Health Card promotes integrated nutrient management through the use of chemical fertilisers and organic manures. Provides soil test based recommendations and ensures quality control of fertilisers.

- National Agriculture Market (eNAM) is a pan-India electronic trading portal creating a national market for agricultural commodities through a government platform. It includes commodity arrivals and prices.
- AgMarknet provides agricultural market information and price trends through a government platform.

It is essential to mobilise States and UTs to own and target stipulated goals with the help of concerted and well-coordinated efforts in terms of e-governance initiatives and their implementation for the Country to achieve the goal of doubling farmers' income by the year 2022.

e-Kranti

- The e-Kranti programme was approved by the government in 2015. The vision of e-Kranti is "Transforming e-governance for Transforming governance".
- The portfolio of the Mission Mode Project has increased from 31 to 44 covering several social sector projects like Women and Child Development, Financial inclusion, Urban Governance, etc. Thrust areas of e-Kranti outlined in Digital India are:
    - **Technology for Education:** All schools will be connected to Broadband and free WiFi will be provided for all secondary and higher schools. A programme on digital literacy will also be taken up at the National level.
    - **Technology for Farmers:** This would ensure real-time information and pricing along with cash and relief payments.
    - **Technology for Security:** Mobile-based emergency and disaster-related services would be provided on a real-time basis in order to minimize loss of life and property.
    - **Technology for Financial Inclusion:** Financial inclusion shall be strengthened using technologies like mobile banking, micro ATMs, etc.
    - **Technology for Justice:** Criminal justice system will be bolstered with technology like e-courts, e-Police, e-prosecution, etc.
    - **Technology for Security:** National Cyber Security Coordination Centre would be established to ensure a safe and secure cyber-space in the country.
    - **Technology for Planning:** National GIS Mission Mode Project would be implemented to provide GIS-based decision-making for project planning, conceptualization, design, and development.

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