YOJANA SUMMARY

ARCHITECTURE

DECEMBER 2022

RE-STRUCTURING URBAN GALAXIES

There is a great talk nowadays about sustainable development in Indian cities and towns. Sustainability ensures long-lasting development without becoming unduly centralised.

Challenges In Current Approach In Making Indian Cities Sustainable

- **Misplaced Focus**
  - By improving their infrastructure, we will surely improve their functioning, but we may not upgrade the quality of life.
- **Wrong Model**
  - Our development focus is concentrated around one place/city. With this, we are denuding the smaller towns in the region of their small-scale crafts and industries.
  - Through this, we are also encouraging migration and overburdening of the mega-cities- which will eventually get crushed under their own burden of management, complexity, and affordability.
- **Wrong Notion Of Bigger Is Better**
  - Expanding mega-cities today can only afford to sell branded and mass-produced goods to greater numbers.
  - This needs larger production centres, industrial complexes, the greater network of transport facilities, etc. This has resulted in creation of colossal agglomerations like Delhi, Mumbai, Kolkata, Bengaluru.
  - These agglomerations are struggling with their size and yet think that they have to rely on it, and depend overly on exhaustible resources that keep getting expensive while the quality of life keeps dropping.
  - Hence, as against **'small is beautiful'** we are talking of **'bigger is better'**.

Important Lessons For Planners

- Planning is not merely physical growth, but also **spiritual and cultural growth**, all hinged on the availability of resources.
- Visiting several towns and cities in different parts of India, one notices the unique and regionally-connected lifestyle and virtuous skills of the local population. They could only do this by decentralisation and by allowing self-discovery for the human energy to find particular avenues of exploration within the regional context of resources and values.
- Such amalgamation also **expressed unity amidst diversity** as if to weave the region holistically.
- We must look at **multi-nodal conglomerates**, and not the single-large banyan trees that can expand infinitely, absorbing smaller entities on the way and obliterating their strengths.

Lessons From The Past

- There was always **respect for the natural network of important water bodies** with a water supply and irrigation systems, and the forests and animal life. **Non-motorised transport** encouraged 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.

- Our present understanding of the term 'economies of scale' is in fact excessively profit-driven and completely inverses such a relationship.

Way Forward

- We need to 'miniaturise' our cities, make them more compact.
  - One of the ways is to think of them as **walkable cities**.
  - It is possible to conceive all aspects of one's life from living to working to most basic education and recreation within a half-hour walk.
  - Public transport can then play a crucial role. consider the smaller towns of around one lakh population.
- Consider the smaller towns of around one lakh population as growth centres and develop them as magnets, other villages and smaller habitations will have the chance to learn, earn and develop without sacrificing their time and energy in communication and travel.
- If guilds are formed in every small town, they, in turn, will become magnets, saving large infrastructural costs and leading to open quiet and walkable towns where every citizen will have pride in sharing the richness.
- In addition, there can be a natural movement of cultural groups, cooperative craft shows and their exhibits, and small science exhibitions that will give the locals a chance to learn and improve their environment and lifestyle.
- We must develop our gifts and skills, and collaborate with and serve others, to liberate us from our inborn egocentricity.
- Micro-financing and sharing a frugal multi-functional attitude to life and lifestyles has sustained the countryside and hinterland over centuries.
- There has to be a deliberate desire to develop relatively small, simple, capital saving and environmentally non-violent (friendly) clusters.

CENTRAL VISTA REDEVELOPMENT PROJECT

- Central Vista is a national icon for India. Located at the heart of New Delhi, the three km stretch between Rashtrapati Bhavan and India Gate is the administrative centre of the country's Union Government.
- It was designed by the **British architects Edwin Lutyens and Herbert Baker** as the seat for the British Raj and adopted by independent India as our own on 15 August 1947.
- The Indian Constitution was written here, we adopted the imperial Council House as the Parliament of India.
  - Similarly, Viceroy's House was adopted as Rashtrapati Bhavan, India Gate became a national monument, the North and South Blocks that symbolised the might of colonial rule over India at the time of their construction became the offices of the Indian government.

KARTAVYA PATH

'Kartavya Path' symbolises a shift from the erstwhile Rajpath being an icon of power to being an example of public ownership and empowerment.

Need For Redevelopment

- Over the years, Rajpath and adjoining areas of Central Vista Avenue had been witnessing pressure of increasing traffic of visitors, putting stress on its infrastructure. It lacked basic amenities.

- Also, a need was felt to organise the Republic Day parade and other National events less disruptively with minimal restrictions on public movement.
- The redevelopment has been done bearing these concerns in mind while ensuring the integrity and continuity of architectural character.

Redevelopment

- The work of Kartavya Path started in Mar', 2021 and its first phase was completed in time for the Republic Day Parade.
- The statue of Netaji Subhas Chandra Bose is installed in the same. The granite statue is a fitting tribute to immense contribution of Netaji to our freedom struggle and would be a symbol of the country's indebtedness to him. The 28-feet tall statue has been carved from a monolithic granite stone and weighs 65 MT.

DEVELOPMENT OF HISTORIC CITY CENTRES

India boasts of several millennia of built heritage and living culture represented in the traditional architectural crafts. In the 21st century, it may now be time to reflect on a truly Indian approach to conservation, one that allows leveraging our historical assets to improve socio-economic conditions of residents of our historic cities.

Benefits Of Such Approach

- The residents of our numerous historic city centres can benefit from greater integration of preservation and conservation efforts with public policies and schemes for development measures.
- Conservation efforts can incorporate local area development through employment generation, boosting local crafts and arts, building of infrastructure, environmental conservation, and landscaping.

Steps Taken

- 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 and increased involvement of civil society.
- There has been increased awareness of the value of the urban setting of our sites in ensuring that the historic character is retained.
- This led to **guidelines issued in 1992** and the **formation of the National Monument Authority**, mandated to create guidelines for new buildings in the setting of each one of nation's protected monuments.

Conservation Efforts And Traditional Art & Craft Capabilities

- It is well established that using traditional building materials stone, earth, bamboo, timber, brick- our forefathers built splendid structures, from modest residences in wonderful cities to grand palaces, monasteries, temples, tombs, stupas, amongst others.
- However, our design and craft capabilities were lost within a few years of materials such as cement, steel, and glass becoming easily available.
- 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 both a unique identity as well as a higher quality of life.
- Conservation effort requires craftsmen using traditional materials, tools and building techniques and hence, can also become a significant employer.

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.
- India's national monuments are irreplaceable and significant asset for the nation and its people. These assets are however under threat from the pressures of urbanisation.
- To achieve conservation and development objectives, different agencies of the government need to partner with academic institutes/civil society and local communities.
- Several of our monuments stand amidst dense urban inhabitation in our many historic cities. Also, often the communities residing around monuments in these dense urban centres are poor and often deprived of even the most basic urban infrastructure.
- 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 various oither activities such as:
        - 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.

Conclusion

- Examples from across the world demonstrate that significant modern architecture can revitalise the economy and generate major visitor interest in heritage sites.
- Conservation and development should go hand-in- hand, but conservation interest must remain paramount if any such development is to be sustainable in perpetuity.

BRIHADESHWARA TEMPLE – A STAND-ALONE MARVEL

- The Big Temple of Thanjavur (Tanjore) is a stunning monument that speaks volumes about the **architectural mastery of the Chola era**.
- This **Shiva temple** is 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**.

Background

The ancient city of Thanjavur (Tanjore) is the cultural capital of the Kaveri delta region. The Cholas take credit for identifying the town as a potential political capital when it was **captured by Vijayalaya Cholas early in 9th century**.

Brihadeeshwara Temple

- **Rajaraja-I** took upon himself this mammoth task of constructing what probably should have been the grandest humble offering to Siva.
- The temple complex measuring about 244 metres on the east-west and 122 metres north-south is placed inside what is referred to as Sivagangai little fort.

- This fortification is **an addition taken over during the renovation by Sevappa Nayaka** around 17th century.

Features

- A well-decorated **arched entranceway**, built during Maratta period, welcomes visitors with various deities fixed as stucco images.
- After the Maratta entrance, visitors are welcomed by a classic **Rajaraja period gopuram** named as Keralanthakakan Thiruvasal.
- This **5-tiered gopuram** has a cellular ambulatory on either side. Sixty metres from here is the second gopuram called as Rajarajan Thiruvasal.
- On the eastern side of this gopuram are **massive monolithic dwarapalakkas** or door guardians.
- Also, the stone base of this gopuram has bas-relief panels depicting episodes from puranas.
- On entering this gopuram the visitor is treated with an aesthetically pleasing grand panorama of the **Sri Vimanam and the sub-shrines**.
  - The 13-storeyed, 66 metres tall 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-feet tall gold-plated kalasam.
- All around the circumference of the compound wall, two- storeyed cloistered halls had been constructed to be used as multipurpose space.
- There are sub-shrines built in between these cloistered halls housing shrines for the **ashtadikpalaka** (deities guarding the 8 directions), Ganesha, and the temple yagasalai.
- 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.
- **Nandhi 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.

Engineering Wonder

- The 2-storeyed sanctum sanctorum along with the vimana on top of it is truly a wonder. The structural load sharing has been brilliantly planned in a very crisp fashion.
- The slope of the pyramid has been achieved by pushing the successive layers by a few inches inside, thereby getting a very gentle slope.
- On top of this pyramid, the shikhara acts as the counterweight to hold them all in place.

Conclusion

- The temple is a grand galore that depicts the seasoned sense of aesthetics and planning that the land and its people had acquired a millennium back.
- Rajarajeshwaram, as the temple was called by Rajaraja was treated as a lifetime mission of a single man that was realised by the combined hard work of several lakhs.

- The dream to commission a mammoth offering to the almighty, without compromising on traditions has been achieved a millennium back and the concept of temples serving as the central fulcrum of society has been tested and established.

REVISITING 'BRUTALIST' ARCHITECTURE

- **Brutalist Architecture** was a child of a line of thought that, wished to strip buildings of their unnecessary intricacies, embellishments, superfluous decorations, cover-ups with the employment of multifarious concealing materials and finishes that hide the core structure and basic character of it.
- This is accepted as a specific offshoot of modern architecture. The word Brutalism doesn't really come from its harsh aesthetics, but actually from the very material it is made up of, i.e., the **predominant use of reinforced and plain concrete**.
- Brutalist architecture is a trend that appeared in Britain, while the society was going through. the post-war reconstruction processes.
- Brutalist buildings are marked by a sort of **minimalist yet voluminous construction** that deliberately displays the bare building materials and structural elements over deceptive manipulations of decorative design.

STATUE OF UNITY

- The **Statue of Unity** is a testimonial to the life of Sardar Patel, a role model of unity and statesmanship.
- The **tallest statue in the world** enjoys a splendidly scenic location facing the **Sardar Sarovar Dam**, 3.2 kilometres away.
- This colossal statue stands on the isle of **Sadhu-Bet in River Narmada**, at Ekta Nagar, District Rajpipla in the Indian State of Gujarat, with the majestic Vindhyachal and Satpuda Mountain Ranges in the backdrop.
- The bronze statue of Sardar Vallabhbhai Patel, created by Indian sculptor Ram V. Sutar, stands almost 50-storey tall and rests on a base with three tiers, setting a **world record for height**.
- The geometrically designed base is situated on its own riverine island and is linked to the main land mass by a bridge for vehicles and pedestrians.
- The statue of Sardar Vallabhbhai Patel that is **twice the height** of the Statue of Liberty seems appropriate at this time for a variety of reasons, not the least of which is that India is seeing a similar rate of economic expansion as the US saw during those times.
- The Statue of Unity (SoU) will be the highest statue in the world at 182 metres from the road entry and 208.5 metres from the river entry, surpassing China's 153-metre-tall Spring Temple Buddha and standing nearly twice as tall as the Statue of Liberty in New York.
- It is capable of enduring wind gusts of over 220 km/h while enduring earthquakes 6.5 on the Richter Scale or greater.
- The Statue of Unity is a true feat of engineering. It honours the engineering prowess of India.

EARTHQUAKE-RESISTANT CONSTRUCTION

India on account of its unique geophysical setting is highly prone to earthquakes of varying intensities. During the last century, five earthquakes measuring M8 or more struck different parts of the country.

Seismic Zoning

- The country has been classified into different zones indicating the intensity of damage or frequency of earthquake occurrences.
- These maps are based on subjective estimates of intensity from available information on earthquake occurrence, geology, and tectonics of the country.
- Considering the recorded history of earthquakes in the country, seismologists have classified 59% of the land mass of India as prone to earthquakes of different magnitudes- 11% in very high-risk Zone V, 18% in high-risk Zone IV, and 30% in moderate-risk Zone III.
- Guwahati and Srinagar are located in Seismic Zone V, while the national capital of Delhi is in Zone IV, and the mega cities of Mumbai, Kolkata, and Chennai are in Zone III.

Multi-storeys Constructed With Thermocol Could Be The Future Earthquake-Resistant Buildings

- Thermocol could be the material of the future for the construction of earthquake-resistant buildings, with thermal insulation, and could also save energy required to develop construction materials.
- Researchers at IIT Roorkee have found that thermocol or Expanded Polystyrene (EPS) is used as a composite material in the core of reinforced concrete sandwich, could resist earthquake forces on up to four-storey buildings.
- The use of an expanded polystyrene core in the concrete walls of a building can also result in thermal comfort. This can help in keeping the building interiors cool in hot environments and warm during cold conditions.
- The technology also has the potential of saving construction materials and energy, with an overall reduction in the carbon footprint of buildings.
- This replacement of concrete with the extremely lightweight EPS also **diminishes the burden on the natural resources and energy required** to produce the cement concrete.

UNIVERSAL PUBLIC DESIGNS

- When it comes to physical-public domain design, infrastructure for persons with disabilities assumes another dimension of architecture.
- Most of the times housing solutions are standardised for common users and not for special needs. Universal or inclusive design provides for a holistic approach in designing public spaces and utilities.

Universal Design

- There are three vital aspects of inclusive designs in any situation. One is the social responsibility or commitment of the entity that evolves strategies for inclusion. Secondly, the reward to such organisations which initiate such changes, and finally, the sustainability of such initiatives.
- Also, 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.

Challenges

- A major challenge in implementing such changes is on emphasising the value of such indicatives at the policy level and at the execution level.

- Another challenge is that the people who are working at various capacities in construction lack knowledge about the whole structure, and issues of accessibility fail to bring those minute changes at their ends for universal designs.

Sugamya Bharat Abhiyan

- On 3 December 2015 i.e., World Disability Day, the Govt. of India launched Accessible India Campaign as a country-wide campaign for achieving universal accessibility for Persons with Disabilities.
- It has three important components including the build environment, transportation sector, and the ICT ecosystem.
- The programme directs that identifying accessible buildings requires **annual accessibility audits** that determine if a building meet agreed standards.
- **The Department of Empowerment of Persons with Disabilities** is working out a comprehensive code which will be a hitherto attempt in Indian context as the first step towards universal design, Sugamya Bharat Abhiyan has indeed made an affable attempt.

ARCHITECTURE FOR HEALTH AND WELL-BEING

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

- We have started to spend an extraordinary time indoors. In our current lifestyles, we are fast dependent on the building amenities and utilities that power us on a day-to-day basis. This includes artificial lighting and artificial means of ventilating space.
- The indoor-based lifestyle, if not possible to be reversed, should most definitely be optimised so that it must take care of our health and well- being.

Definition of Health

- The World Health Organization gives a more wholesome definition of health which is a state of complete physical, mental and social well- being and not merely the absence of disease and infirmity.
- The wide spectrum of health encompasses preventive, promotive, curative, rehabilitative and palliative care.
- India has taken steps in this direction under the Ayushman Bharat where we are now opening Health and Wellness Centres.

Foundation Of Current Paradigm Of Building And City Planning

- **All Sanitary Conference that was held in Lucknow in 1914** laid the foundation of the current paradigm of building and city planning, by including the concepts of health and well- being.
- The concept of having an appropriate light place in the streets was introduced and the width of the abutting streets was made in accordance to the light.
- This forms the basis of all urban bylaws and city plans made later in India.

Linkages Between Architecture And Non-Communicable Disease

- Architecture and city planning are closely linked to the reduction in non-communicable diseases if proper thought is put in place. The proximities of spaces for work-out and recreation including parks, integrated with our urban texture, hold the key to a healthy life.

- The use of interior products in buildings that are non-carcinogenic in nature like paints, furniture finishes, and upholstery is necessary for the prevention of built of volatile organic compounds which are proven to be carcinogenic on longer exposures.
- A well-designed building is an antidote to the daily humdrum of office work and a release from stress. Large community spaces also have a big component of indoor environmental quality and related well-being.
- From the point of view of occupational health and prevention of airborne infection spread, we are now designing indoor air standards and suitable mechanisms to make these indoor spaces healthy and aimed towards indoor well-being.

Way forwards

- What is most required that our pre-existing focus on health and well-being must be given a renewed vigour so that our each and every building is designed for health and well-being.
- The possible way of achieving this is by incorporating all the state- of-the-art **building codes and standards that the Bureau of Indian Standards publishes**. This includes the National Building Code 2016 along with other sub-codes like SP-41 or the Handbook of Functional Requirements of Buildings.
- We have also created the **National Lighting Code** which deals with visual comfort in spaces, an often-overlooked factor.

INDIA'S G20 PRESIDENCY: SIGNIFICANCE & OPPORTUNITIES

"*India's G20 Presidency will be inclusive, ambitious, decisive, and action-oriented...Over the next year, we will strive to ensure that the G20 acts as a global prime mover to envision new ideas and accelerate collective action...Together, we will make the G20, a catalyst for global change*."

- PM Modi's remarks at the Closing Session of the G20 Summit in Bali

G-20

- The Group of Twenty (G20) is the premier forum for international economic cooperation. It plays an important role in shaping and strengthening global architecture and governance on all major international economic issues.
- The G20 members represent around 85% of the global GDP, over 75% of the global trade, and about two-thirds of the world population.

Genesis of G20

- The G20 was founded in 1999 after the Asian financial crisis as a forum for Finance Ministers and Central Bank Governors to discuss global economic and financial issues.
- It was upgraded to the level of Heads of State/Government in the wake of the global economic and financial crisis of 2007, and, in 2009, was designated the premier forum for international economic cooperation.
- The G20 initially focused largely on broad macroeconomic issues, but it has since expanded its agenda to inter-alia including trade, climate change, sustainable development, health, agriculture, energy, environment, climate change, and anti-corruption.

G20 Members

- The Group of Twenty (G20) comprises 19 countries (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Türkiye, United Kingdom and the United States) and the European Union.

Working of G20

- The G20 Presidency steers the G20 agenda for one year and hosts the Summit.
- The G20 consists of **two parallel tracks**: the Finance Track and the Sherpa Track.
    - Finance Ministers and Central Bank Governors lead the Finance Track while Sherpas lead the Sherpa Track.
    - The Sherpas oversee negotiations over the course of the year, discussing agenda items for the Summit and coordinating the substantive work of the G20.
- The **Group does not have a permanent secretariat**. The Presidency is supported by the Troika - previous, current, and incoming Presidencies.
    - During India's Presidency, the troika comprises Indonesia, India, and Brazil, respectively.

India's Presidency

- India is holding the Presidency of the G20 from 1 December 2022 to 30 November 2023 which offers a unique opportunity to contribute to the global agenda on pressing issues of international importance.
- The G20 President sets the agenda for the year, identifies the themes and focus areas, conducts discussions, and delivers the outcome documents.
- The G20 mantra is - ***One Earth, One Family, One Future***. It is these thoughts and values of India that pave the way for the welfare of the world.

New Delhi Summit

- The 18th G20 Heads of State and Government Summit will take place on 9-10 September 2023 in New Delhi.
- A G20 Leaders' Declaration will be adopted at the conclusion of the New Delhi Summit.

Logo and Theme

- The G20 logo draws inspiration from the vibrant colours of India's national flag saffron, white and green, and blue.
- It juxtaposes planet Earth with the lotus, India's national flower that reflects growth amid challenges. The Earth reflects India's pro-planet approach to life, one in perfect harmony with nature.
- The theme of India's G20 Presidency -"**Vasudhaiva Kutumbakam" or "One Earth One Family One Future**" is drawn from the ancient Sanskrit text of the Maha Upanishad.
- The logo and the theme together convey a powerful message of India's G20 Presidency, which is of striving for just and equitable growth for all in the world.