JOURNAL OF THE INDIAN INSTITUTE OF ARCHITECTS
PEER REVIEWED JOURNAL OF IIA ● ISSN-0019-4913
MAY 2026 ● VOLUME 91 ISSUE 05 ● RS. 100

GRAPHISOFT
Archicad®

Exclusive Offer for Members of
Indian Institute of Architects Only

BREAK FREE FROM THE SUBSCRIPTION TRAP.

REAL 3D POWER.
REAL OWNERSHIP.

Save Up to 50% +
Free 1-Year
Subscription

Offer Ends
30th June, 2026

OWN YOUR PAST.
COMMAND YOUR FUTURE.

ACT NOW TO CLAIM YOUR IIA OFFER

OFFER EXPIRES IN 20 DAYS - DO NOT MISS OUT

Contact your IIA representative:

Hitesh Savani – 9824702019 | Nilesha – 9004406706

Marketing_India@nemetschek.com

Graphisoft Archicad is powered by
NEMETSCHEK
GROUP


uia
HOSTED & CURATED BY
THE INDIAN INSTITUTE OF ARCHITECTS
uia 2027
INTERNATIONAL FORUM
SAVE THE DATE
23-28
September 2027
Jio World Convention
Centre, Mumbai

CONTENTS


Dr. Abhijit Natu


Dr. Parag Narkhede


Dr. Abir Bandyopadhyay


Dr. Chandrashekhar


Dr. Rama Subrahmanian


Dr. Aarti Grover

BOARD OF REVIEWERS


Dr. Ajay Khare


Ar. Jit Kumar Gupta


Ar. Mukul Goyal


Prof. Harshad Bhatia

ADVISORS IIA PUBLICATION BOARD

Printed & Published/Editor by Ar Lalichan Zacharias on behalf of The Indian Institute of Architects.

Designed by **India Printing Works**
Printed by **Arihant Digiprint**
Shed No.1, Ground Floor, CTS No.15, 16, 20, 21 & 37, Italian Compound, Dindoshi Village, Ittbhatti, Goregaon East, Mumbai-400063

Published at The Indian Institute of Architects, Prospect Chambers Annexe, 5th Floor, Dr. D.N. Road, Fort, Mumbai-400001.

+91 22 22046972 / 22818491 / 22884805
iiapublication@gmail.com
www.indianinstituteofarchitects.com

Editor Ar. Lalichan Zacharias
Kakkamthottil, Jaya Nagar, Marudu P.O., Pachalam S.O., Maradu, Dist-Ernakulam, Kerala-682304.
R.N.I. No.9469/57
lalichanz@gmail.com

Advisors : **Ar. Mukul Goyal**

Printer's Email
arihantdigiprint.offset@gmail.com
krish.graph2021@gmail.com

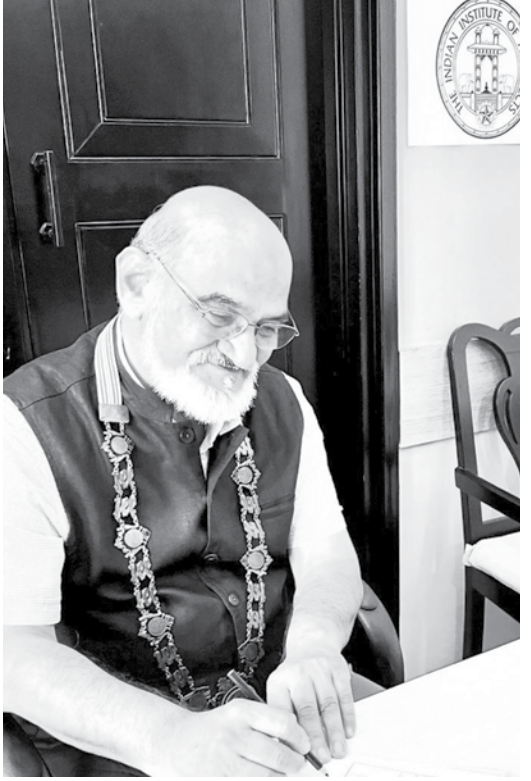
JIIA IS A REFEREED JOURNAL
ISSN 0019-4913

REGISTERED UNDER SOCIETIES REGISTRATION ACT XXI OF 1860.

JOURNAL OF THE INDIAN INSTITUTE OF ARCHITECTS
VOL. 91 - ISSUE 05 - MAY 2026

www.indianinstituteofarchitects.com

PRESIDENT'S MESSAGE



Dear Members,

Greetings!

The Indian Institute of Architects remains committed to strengthening its institutional processes and enhancing member engagement through various ongoing initiatives.

I am pleased to inform you that the *Standardisation Testing and Quality Certification* (STQC) Directorate has accepted the assignment for certification of the *IIA Election Portal.* This is a significant step towards ensuring a secure, transparent and robust election process for the Institute. Over the past year, IIA has consistently followed up with STQC and complied with all prescribed requirements necessary for the certification process. We will continue to coordinate closely with the concerned authorities, and the election schedule will be announced upon completion of the certification process.

I would also like to remind members about the *IIA National Architectural Design Competition* for the redevelopment of the IIA building at Belapur, Navi Mumbai. In response to requests received from members and to encourage wider participation, the last date for submission of entries has been extended up to 15 July 2026. I urge members, particularly young architects, to take advantage of this opportunity to contribute innovative design ideas for a project of significance to our Institute.

As we approach World Environment Day on 5 June this year, let us reaffirm our commitment to sustainable and environmentally responsible architectural practices that contribute to a healthier and more resilient future for our communities.

The continued participation and engagement of members in the Institute's activities are instrumental in strengthening IIA and advancing the architectural profession in India. I sincerely appreciate your support and involvement in the various initiatives undertaken by the Institute.

Let us continue to work together with dedication and professionalism towards achieving our shared vision for the future of architecture and the growth of our Institute.

Ar. Vilas Avachat
President
The Indian Institute of Architects

IIA OFFICE BEARERS

Ar. Jitendra Mehta
Vice-President, IIA

Ar. Tushar Sogani
Jr. Vice President, IIA

Ar. Sudhir Pillai Balakrishna
Hon. Treasurer, IIA

Ar. Akshaya Kumar Beuria
Jt. Hon. Secretary, IIA

Ar. Ranee Vedamuthu
Jt. Hon. Secretary, IIA

Ar. Sandeep Bawdekar
Jt. Hon. Secretary, IIA

Ar. Chamarthi Rajendra Raju
Imm. Past President, IIA

EDITOR'S NOTE

Greetings to all IIA members

India today stands at a defining moment in its development journey. Across the nation, unprecedented investments in infrastructure, urban development, transportation networks, housing, renewable energy, logistics and digital connectivity are reshaping the physical and economic landscape. From high-speed rail corridors and multimodal transport hubs to smart urban precincts, industrial corridors and resilient coastal infrastructure, the scale and pace of transformation are remarkable.

Yet, beyond statistics and construction milestones lies a more profound question: *What kind of built environment are we creating for future generations?* Infrastructure, while essential for economic growth, derives its true value when it enhances the quality of life, strengthens communities, promotes sustainability and reflects cultural identity. It is at this critical intersection that the architectural profession assumes a central role.

Architects are not merely designers of buildings, they are planners of human environments, custodians of cultural continuity, and facilitators of sustainable development. Every airport, railway station, educational campus, healthcare facility, housing development, public space, or industrial township ultimately depends upon thoughtful architectural intervention to ensure functionality, inclusivity, resilience and aesthetic quality. As India advances towards becoming one of the world's leading economies, architects must actively participate in shaping this transformation with vision, responsibility, and innovation.

The contemporary challenges before us are multifaceted. Climate change demands environmentally responsive design solutions. Rapid urbanization calls for compact, efficient, and livable cities. Technological advancements are redefining construction methodologies, material systems, and professional practice. Simultaneously, society expects greater accessibility, equity and sustainability in the built environment. These challenges present architects with an unprecedented opportunity to contribute meaningfully to national development while advancing the profession itself.

The Indian Institute of Architects continues to position itself as a catalyst in this evolving landscape. Through professional development initiatives, advocacy, academic engagement and international collaborations, the Institute strives to empower architects to respond effectively to emerging opportunities and responsibilities.

The year 2026 marks a particularly significant chapter in the global engagement of the Indian architectural fraternity. India will proudly host the *ARCASIA Forum 22,* scheduled from 8 to 12 September 2026, bringing together architects, planners, academics, policymakers and industry leaders from across Asia. The forum will provide a unique platform for exchanging ideas, showcasing innovation, discussing regional challenges and exploring collaborative solutions for the future of our built environments. It will also offer an invaluable opportunity to present India's architectural achievements, professional capabilities and cultural richness on a distinguished international stage.

Looking further ahead, the momentum continues as Mumbai prepares to host the prestigious *UIA World Congress of Architects* in November 2027. This historic event will bring the global architectural community to India and reinforce the country's growing influence in international architectural discourse. For Indian architects, educators, students and allied professionals, the Congress represents an extraordinary opportunity to engage with global thought leaders, contribute to contemporary debates, and showcase India's evolving architectural narrative.

These international events are not merely conferences: they are milestones in India's architectural journey. They signify recognition of the nation's growing importance in shaping the future of architecture and urbanism. More importantly, they provide a platform for Indian architects to demonstrate how local knowledge, cultural heritage, technological innovation and sustainable practices can together create meaningful solutions for a rapidly changing world.

As we witness India's remarkable progress, let us reaffirm our commitment to excellence, ethics, innovation and public service. The profession of architecture has always been a silent yet indispensable force behind societal advancement. Today, as the nation builds new infrastructure and reimagines its future, architects must continue to lead with creativity, responsibility and vision.

The future of India will not be defined solely by the infrastructure it builds, but by the quality, inclusiveness and sustainability of the spaces it creates. Architects have a vital role in ensuring that this growth remains humane, resilient and enduring.

Let us embrace this responsibility and collectively contribute towards building an India that is not only developed, but thoughtfully designed for generations to come.

Prof. Vinit Mirkar

Editor
Journal of the Indian Institute of Architects (JIIA)
May 2026

EDITORIAL TEAM

Ar. Vinit Mirkar

Dr. Shilpa Sharma

Ar. Shruti Verma

Ar. Neha Sarwate

Dr. Sampada Peshwe

Dr. Namrata Tharwani Gaurkhede

Ar Mrinalini Sane

Dr. Nabanita Saha

Dr. Pashmeena Ghom

Architecture

At the Heart of India's Growth Story

The May 2026 cover of the Journal of the Indian Institute of Architects (JIIA) is conceived as a visual manifesto for a nation undergoing one of the most transformative periods in its history. The composition moves beyond the language of economic statistics and construction milestones to explore the deeper relationship between infrastructure, architecture and the human environment. It captures an India where unprecedented investments in transportation networks, urban development, renewable energy, housing and public infrastructure are reshaping not only the physical landscape but also the social and cultural aspirations of its people.

Structured along a dynamic diagonal and vertical axis, the artwork evokes both continuity and progress. At its foundation, the layered geometry of a traditional Indian stepwell merges with the form of a contemporary transit tunnel, symbolizing the enduring depth of India's civilizational knowledge and the infrastructural frameworks that support its future. Emerging from this shared core, a high-speed train ascends through the composition, representing connectivity, mobility and the accelerating momentum of national growth.

At the centre stands an abstract architectural pavilion formed through inter-woven layers of institutional, residential and environmentally responsive structures. Integrated solar arrays and sustainable design elements emphasize architecture's role in creating resilient, inclusive and liveable communities. Beyond this focal point, the composition expands into a horizon where historic landmarks and contemporary skylines coexist seamlessly, illustrating a nation that advances confidently while remaining rooted in its heritage.

Rendered with subtle water colour tones, the cover deliberately allows the built environment to narrate the story, reaffirming the architect's role as a vital participant in India's progress. Ultimately, the image celebrates architecture as the bridge between heritage and innovation, growth and sustainability, vision and reality.

JIIA Team

JIIA Call
for Papers, Articles, Projects

The Journal of the Indian Institute of Architects invites original and unpublished contributions from members **ONLY** (academicians, practitioners and students) under the following FOUR categories. Submission in each category is strictly only through the respective google forms.

In order to be accepted for publication, all material sent in these categories should have the following components:

1. MS Word document file with text only. Please do not format it in anyway. The numbered captions for all the images will also be in this document.
2. Folder with all images (minimum 300 dpi), numbered according to the captions given in your text file
3. Photograph of the author/s (minimum 300 dpi).
4. Author biodata – Maximum 50 words.
5. PDF (optional)– showing the intended layout. This pdf should include text and all images, with numbered captions.

Category 1 : Articles

google form link: https://forms.gle/pJ2d4MVYqyPzWiVc9

Essays, interviews, articles (1500- 2500 words), book reviews (600 and 750 words), travelogues, sketches and photo-essays in the areas of architecture, planning, urbanism, pedagogy, heritage, technology, ecology, theory and criticism, visual design, practice or any other relevant subject pertaining to the built environment. (Details of the format will be available on the JIIA website).

- For a design project, please include the 'Fact File' with the following details : Project Name, Location, Plot area, Total built up, Structural consultants, Project completion. Also please give the photo captions and credits. Please ensure that the image is referred to within the text. For eg, "As seen in Figure 1…". This is essential for the layout.
- For design projects, plans and sections of the project are desirable along with the photographs.
- Book reviews should be only of books by Indian authors. please include the "Fact File" with the following details: book title, author name, publisher, year of publication, ISBN, language the book is written in, genre (technical/ fiction/ etc.), no of pages, dimensions (in cm), type (Kindle / paperback/ hardback), available at (amazon.in/ flipkart.com/ others).
- Please send a write-up of about 200-300 words along with sketches and photo-essays.

Category 2 : Student Work

google form link: https://forms.gle/8wDCYFusLb7hWcpa6

Summaries of dissertations (2000-3000 words) at the level of B.Arch. & M.Arch., and theses at the Ph.D. level. The Guide for that work will be mentioned as the Co-author. (Format will be available on the JIIA website).

Category 3 : Contributions from Chapter Correspondents

google form link: https://forms.gle/kdVvqQUmWDmRhjGi8

(a) Chapter News: This includes various interesting activities from the Centres of your Chapters (maxm. 500 words for the news from the entire Chapter).

(b) News of conferences by the academic institutes in your respective Chapters.

(c) Obituaries : Obituaries of IIA members should consist of the photograph of the departed soul, the dates of birth and death and a short 50-word note.

Category 4 : Research Papers

google form link: https://forms.gle/4CmCsXQJdrBiSrSD8

Research papers (2000-5000 words) in the prescribed format. The research may be based on their ongoing or completed research. (Format is available on the JIIA website). All contributions in this category will be double blind peer-reviewed before being accepted for publication by academic experts of repute.

Category 5 : JIIA Cover + Theme Note

google form link: https://forms.gle/En69gXSps2j72Hrf7

Students from affiliated colleges are invited to design the cover page theme. This should be a graphic based on some aspect of Indian Knowledge Systems. The submission will include the graphic file (jpeg or corel draw); a theme note (with a title) of about 500 words explaining the concept of the graphic. Please note that the image you send should be within a SQUARE of 15 x 15 cm. It will be adjusted as per the layout requirements of the JIIA Cover. It should NOT contain any text / slogan/ etc.

Please note:

1. All submissions will be accepted only through google forms.
2. Submissions will **NOT** be accepted through email.
3. Any queries to be addressed to : jiiaeditorial@gmail.com.
4. When you correspond with us, please give your email id (that you regularly use) and your cell no. (preferably with WhatsApp).
5. It is compulsory to mention your IIA regn. No. Submissions will **NOT** be accepted from non-members.
6. The review process takes anywhere between 4-6 weeks. Since it may not be possible to respond to all authors who send in their work, we will definitely revert if and when your work is accepted.
7. JIIA does not charge any fees for publication of any professional or academic work.
8. It is understood that submission from an author is an original work, unpublished anywhere else, and that IIA and JIIA are in no way responsible for any matter or dispute arising out of the publication of the same.
9. All authors are requested to refer to further detailed information available on the JIIA website.

Dear Members,

In anticipation of World Environment Day, to be observed on 5 June, and considering that this May issue of the JIIA precedes the occasion, we are publishing this Declaration in advance to emphasize the importance of environmental responsibility and to encourage all members to renew their commitment to sustainable practices.

Declaration on The World Environment Day

We Architects of India, members of the Indian Institute of Architects , recognise that there exists only one planet earth having finite natural resources for sustaining all living organism, flora & fauna and;

We Architects, as members of the Indian Institute of Architects, also recognize that, having largest global share of human population and limited availability of land and water resources, India, as a nation urgently needs innovative options for planning and designing human settlements and creating state of art/sustainable built environment, based on preserving, protecting and optimizing the nature and available natural resource.

We, the architects of today and tomorrow, recognizing our profound responsibility in shaping the built environment sustainable

Understanding and appreciating, the critical and vital role, relevance and importance of built environment and that of architects and architecture as a profession, in planning and designing, built environment and human settlements more qualitative, eco-friendly, resource efficient, livable and

We, the community of architects, and members of the Institute of Architects India take the pledge, that we shall use our skill, expertise, understanding, experience and knowledge available at our command to make built environment zero-carbon, zero-energy and zero-waste.

This declaration is a pledge to design with conscience, to build with respect, and to imagine futures where human progress and environmental preservation become inseparable.

Accordingly, the entire architectural community of India , do hereby solemnly declare and commit, affirm, resolve and declare, on this World Environment Day, June 5th, 2026 that we shall be ;

- ***Leveraging Nature and Natural Resources;*** *by making nature integral part of professional ethics and professional practices, while evolving planning and design option of the built environment.*
- ***Evolving Sustainable design;*** *by integrating energy efficiency, using renewable resources, and low-carbon materials to minimize ecological footprints of built environment.*
- ***Promoting Site sensitivity:*** *by designing buildings which respect the natural terrain, existing water systems, and biodiversity, harmonizing with rather than disrupting ecosystems.*
- ***Creating Climate-responsive Architecture:*** *by leveraging orientation, ventilation, and passive design strategies for prioritizing and reducing reliance on artificial energy systems.*
- ***Promoting Green building standards:*** *by committing to advancing certifications and practices that ensure healthier spaces for people and the environment.*
- ***Adopting Circular construction:*** *by using reused, recycled, and innovatively repurposed building materials to eliminate waste and promote life cycle use.*
- ***Ensuring Urban sustainability :*** *by planning and designing buildings and cities based on resilience, equity, and ecological balance, ensuring livable communities for generations to come.*
- ***Achieving Collective advocacy:*** *by educating and advocating, inspiring governments, industries, and citizens to embrace sustainable living.*
- ***Making Building Zero Carbon;*** *by adopting passive design strategies using nature and nature based options in planning and designing of buildings.*

- ***Advocating Sustainable materials:*** *by prioritizing renewable, recycled, and low-carbon resources in all construction.*
- ***Ensuring Energy efficiency:*** *by Integrating passive design, renewable energy systems, and smart technologies to reduce emissions.*
- ***Ensuring Water optimization:*** *by employing rainwater harvesting, greywater recycling, and efficient fixtures to safeguard vital natural resource.*
- ***Protecting Biodiversity:*** *by designing landscapes and structures that preserve and enhance natural habitats.*
- ***Promoting Ethical Responsibility:*** *by uphold transparency, accountability, and advocacy for policies that protect the environment.*
- ***Achieving Sustainable Goals;*** *by appropriately preserving, conserving and using nature and natural resources for achieving SDG11.*

With Warm Regards,
Ar. Vilas Avachat,
President,
The Indian Institute of Architects

Ahilya Bai Holkar's Legacy

An inquiry into the untapped heritage of Maheshwar

by Ar. Savar Suri, Ar. Pallavi Keswani and Ar. Keerti Mishra

Abstract: The article "Ahilya Bai Holkar's Legacy: An enquiry into the untapped heritage of Maheshwar" examines the complicated interplay between architectural practice and the complex dynamics of human settlements, highlighting that architecture is both influenced by and influences the wider social, cultural, environmental and economic contexts in which it operates. The study examines the intersection of spatial organisation, community life and traditional practices in Maheshwar, a historic town in Madhya Pradesh, to delineate a distinctive architectural character. The research talks about the physical structure, socio-cultural dynamics and environmental strategies inherent in the settlement's vernacular fabric through extensive site documentation and analytical techniques. The work emphasises Maheshwar's complex histories, traditional knowledge systems and the ongoing impact of local artisan practices like handloom weaving. The theoretical ideas with real-world work, which not only lead to design discoveries that are relevant to the situation, but also show how important experiential learning is in architectural education.

Keywords: Maheshwar, Heritage, Ahilya Bai, Architecture, Culture

1. Introduction and Background

Architecture, both as a field of study and a method of practice, operates within a complicated web of relationships that extend far beyond merely constructing buildings. The notion that architecture cannot occur in isolation is predicated on the understanding that the constructed environment is intricately linked to social, cultural, environmental, economic and technological influences. Human settlements exemplify these interdependencies, evolving through ongoing negotiations among individuals, locations and processes.

The examination of human settlements has historically been pivotal in architectural and urban discourse, as it elucidates the ways in which spatial organisation mirrors societal frameworks, cultural principles and environmental adjustments. Historical developments, socio-economic changes and ecological factors influence settlements, whether rural, semi-urban, or urban, making them dynamic entities. In this context, architecture is not a standalone artefact; instead, it is a responsive and adaptive outcome of multiple interacting forces.

In modern times, the problems of rapid urbanisation, loss of cultural identity, environmental degradation and the homogenisation of built forms have made it even more important to look at settlement-based studies again. The question of identity and belonging becomes crucial in places with a lot of history and culture, like traditional Indian towns. Settlements such as Maheshwar exemplify stratified histories, indigenous knowledge and socio-cultural continuity, rendering them significant locations for architectural investigation.

The current research, titled "Study of Human Settlement," is designed as an exploratory and analytical examination of the spatial, social and environmental aspects of a specific settlement. It seeks to comprehend the interplay between constructed forms, open spaces and communal life in the formation of a unified architectural identity. By directly interacting with the site through documentation and analysis, the study aims to connect theoretical knowledge with hands-on learning, which is a key part of architectural education.

The study area, Maheshwar, a historic town in Madhya Pradesh, is situated along the banks of the Narmada River and is renowned for its temples, ghats and traditional handloom sarees. Located on a hill overlooking the river, the town is structured in such a way that its spatial organisation gradually leads toward the ghats. This makes the Narmada not merely a physical edge but a deeply embedded spiritual and cultural anchor within the urban fabric.

In the 18th century, Rani Ahilyabai Holkar supported the development of Maheshwar, which she saw as an important religious center. Her interventions included the construction of temples, ghats and key architectural complexes, as well as shaping the town's spatial character. Alongside this, Maheshwar emerged as an important centre for handloom weaving, a tradition that continues to define its cultural identity even today.

The primary aim of the study is to look at a rural or semi-urban settlement in terms of how it grows, how its space is organised, how its social and cultural dynamics work and how it responds to the environment. The objectives are fourfold: first, to document the physical and spatial characteristics of the settlement, including layout, land use and built form; second, to examine socio-cultural practices, occupational patterns and community structures; third, to analyse climatic and environmental strategies embedded in vernacular architecture; and fourth, to synthesise these observations into context-sensitive design insights.

A significant aspect of this study is its educational relevance. Architectural education is putting more and more emphasis on experiential learning, where students learn by doing things in real-world situations that help them think critically and be more sensitive to design. The study pushes students to go beyond abstract design ideas and become involved with how people actually live.

1.1 Ahilya Bai Holkar's Legacy

The present character of Maheshwar is deeply rooted in the vision and patronage of Ahilyabai Holkar, who made the town her capital in the late 18th century. Under her rule, Maheshwar was not merely developed as a political centre but consciously shaped as a sacred and lived urban landscape along the Narmada. Her most enduring contribution lies in the construction of the ghats and temple complexes that define Maheshwar's riverfront today. These were not conceived as isolated religious structures, but as part of a larger spatial system—where processional routes, courts and access points seamlessly connect the town to the river. The stepped ghats, in particular, show that the builders were aware of the sloping ground and made it possible for people to interact with the water in both ritual and everyday ways.

Ahilyabai's architectural interventions extended across scales, from the Rajwada complex, which established a formal seat of power, to numerous temples such as Rajrajeshwar and Chhatrahbhuj Narayan, which anchored the town's spiritual life. She marked her approach with restraint and continuity, utilising local materials and craft traditions to ensure that new constructions remained embedded within the existing context. Equally significant was her role in shaping Maheshwar's socio-economic fabric. By encouraging the settlement of weaving communities, she laid the foundation for the town's renowned handloom tradition, which continues to sustain livelihoods and cultural identity. What distinguishes her legacy is the way architecture, economy and spirituality were integrated into a cohesive whole. Maheshwar, as it exists today, is not simply a historic town shaped by royal patronage; it is a living environment where Ahilyabai Holkar's vision continues to be experienced through everyday practices, spatial rhythms and enduring cultural memory.

2. Methodology of the Site Study

The site selected focused on three significant spatial stretches that connect the town's inner fabric to the riverfront, the Rajwada complex, the temple precincts (Figure 1) of Rajrajeshwar and Chhatrahbhuj Narayan and the residential enclave of Rewa Society. The town's sloping terrain allows for a series of stepped transitions leading down to the ghats, creating a layered experience of movement and access. As one moves across these stretches (Figures 2 and 3), the architectural character shifts noticeably—this transition formed a key focus of our study.

Figure 1: Ahilya Bai Holkar's presence looms large in the precinct, with a statue in the palace complex
Source: Authors

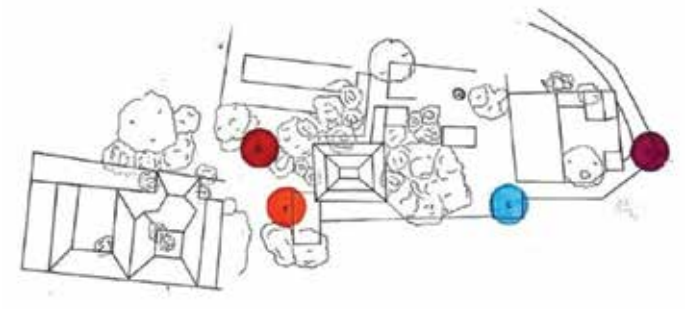


Figure 2: Stretch 1 of the study showing spatial flow from Rajwada to the ghats through public courtyards and narrow transition alleys. (The coloured circles are marked to represent the identified nodes of the stretch.)
Source: Authors, Students of B. Arch (2024-29) Batch, School Of Art and Architecture, Sushant University

Figure 3 (Left): Stretch 2 of the study depicting the sacred temple spine and its connection to the ghats (Right): Stretch 3 of the study showing residential clustering and pedestrian linkages to the riverfront. (The coloured circles are marked to represent the identified nodes of the stretch.)
Source: Authors, Students of B. Arch (2024-29) Batch, School Of Art and Architecture, Sushant University

The study employs a mixed-method approach, integrating qualitative and quantitative methodologies to achieve a comprehensive understanding of the selected human settlement. The research is organised into sequential phases, commencing with a comprehensive review of secondary literature to provide a theoretical foundation in settlement studies, vernacular architecture and socio-spatial analysis.

Fieldwork is the main way to collect primary data. This means documenting the settlement on site. This includes drawing, taking pictures and mapping exercises to record how things are arranged in space, how streets are laid out, how land is used and how buildings are shaped. Figure-ground studies, circulation mapping and the identification of public, semi-private and private spaces to study settlement morphology have been used.

The last step is interpretation and inference, which turn the results into insights and design guidelines that are relevant to the situation. This strengthens the link between human behaviour, the environment and architectural form.

3. Architecture and Contextual Interdependence

Architectural theory has extensively examined the notion that architecture is intrinsically contextual. Scholars assert that one cannot comprehend constructed environments without considering their cultural, social and environmental contexts. Norberg-Schulz (1980) posited the notion of genius loci, or the spirit of place, contending that architecture must engage with the distinctive attributes of its context to forge significant spaces. Rapoport (1969) also discussed how cultural factors influence the design of houses. He said that social norms, beliefs and ways of life are essential in shaping architectural expressions.

This interdependence becomes even clearer when talking about human settlements. Settlements are groups of buildings that work together to make up a larger social and spatial fabric. In his 1960 book on urban form, Lynch stressed how important it is for cities to be easy to read and picture to shape how people see and move around them. These ideas show how important it is to look at settlements as whole systems instead of just parts.

The architecture of Maheshwar reveals layered narratives of everyday life, spirituality and erstwhile royal patronage. Through fieldwork, measured drawings, photographic documentation and interactions with residents, the study examines how these spaces are not only designed but also continuously inhabited and adapted. It seeks to understand the dynamic relationship between people and space within the context of a living heritage town. The three-day extensive study was conducted by B. Arch, 1st-year students of Sushant University (2024-29 batch) by gathering primary data, doing field surveys, taking measured drawings, taking photographs and sketching at the site. They examined the tangible aspect (streets, buildings and other important structures) as well as tried mapping the intangible (processions, everyday rituals and

customs) by way of sketches (Figure 5), measured drawings and interaction with the locals in the form of a questionnaire (Figure 4) and finally, did the analysis and inferences.

The architecture of Maheshwar moves across distinct yet connected vocabularies, from the Maratha courtly language of the Rajwada to the Nagara forms of the Rajrajeshwar and Chhatrahbhuj Narayan temples. What binds these together is the consistent use of local materials, namely black basalt, lime plaster and timber are those which respond both to climate and availability, but also lend the town a quiet material coherence. Elements such as carved stone, arches and the stepped ghats operate beyond ornamentation. They are structural, tactile and symbolic, always articulating ideas of permanence, devotion and a gradual movement into the sacred. Across residential, religious and civic spaces, this continuity of material and detail reinforces a shared architectural identity.

3.1 Spatial Significance

What becomes immediately evident in Maheshwar is the clarity with which space is organised. Whether one moves through the narrow lanes of Rewa Society, the formal courts of the Rajwada, or the temple precincts, each path ultimately finds its orientation towards the Narmada. The river, therefore, is not peripheral; it is the organising principle of the town's spatial logic (Figure 6).

Street sections, edge conditions and built heights are carefully negotiated to balance exposure and intimacy, allowing for framed views, moments of pause and gradual transitions. These are not streets designed for speed or vehicular movement but for walking, gathering and inhabitation. Their human scale, often absent in contemporary urbanism, becomes one of Maheshwar's most enduring qualities.

3.2 Vernacular Architecture and Environmental Responsiveness

Vernacular architecture has been extensively examined as a paradigm of sustainable and contextually responsive design. Oliver (1997) defined vernacular buildings as structures that develop through traditional knowledge systems, employing locally sourced materials and construction methods. This type of architecture is naturally responsive to changes in the weather because it changes over time.

In India, vernacular settlements show great care for the environment. Passive design techniques that improve thermal comfort and energy efficiency include courtyard houses, narrow streets, shaded public spaces and strategies for orienting a building. These features not only serve a practical purpose but also have deep ties to social and cultural practices. For example, courtyards are often used for socialising, rituals and everyday tasks. This shows how environmental and socio-cultural factors come together.

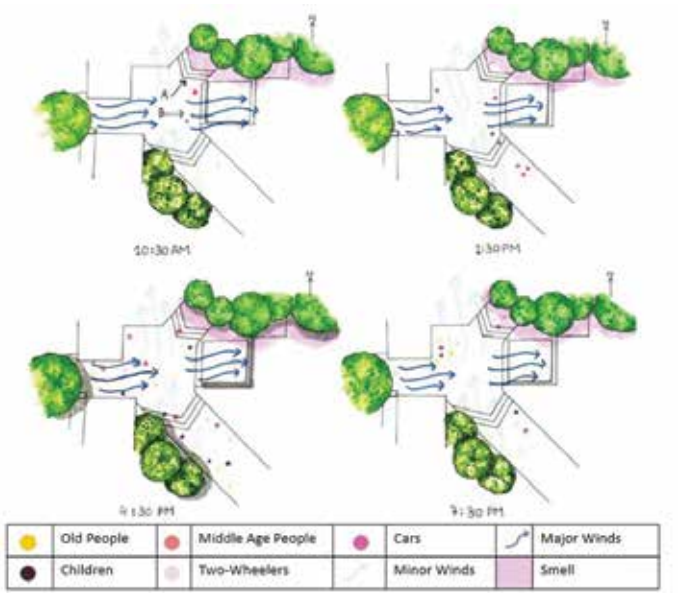


Figure 4: Activity mapping of a critical node on the streets of Maheshwar
Source: Authors, Students of B. Arch (2024-29) Batch, School Of Art and Architecture, Sushant University

Figure 5: Nodes of Maheshwar: A view
Source: Authors, Students of B. Arch (2024-29) Batch, School Of Art and Architecture, Sushant University

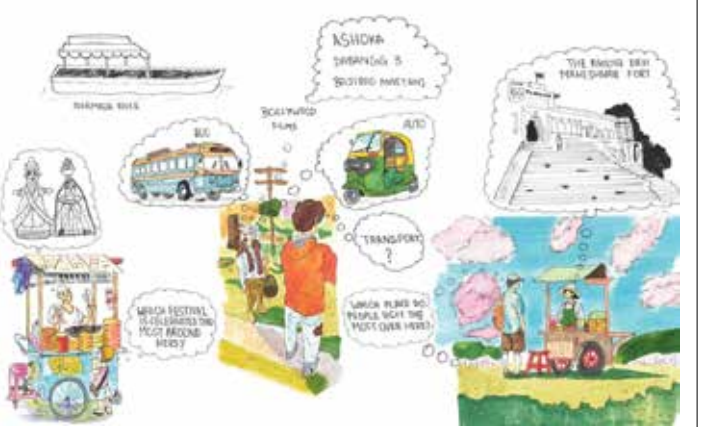


Figure 6: Mapping several socio-cultural aspects through interviews
Source: Authors, Students of B. Arch (2024-29) Batch, School Of Art and Architecture, Sushant University

The examination of climatic responsiveness in settlements corresponds with current discussions on sustainability. As contemporary architecture confronts challenges related to energy consumption and environmental impact, vernacular practices offer important perspectives on resource efficiency and ecological equilibrium. The present study contributes to the ongoing effort to integrate traditional knowledge with modern design methodologies by documenting and analysing these practices.

Settlements are fundamentally social constructs, shaped by the interactions, practices and values of their inhabitants. Anthropological and sociological research has underscored the influence of culture in spatial organisation, encompassing neighborhood layouts and the architectural design of individual residences. Rapoport (1982) stressed that constructed environments convey cultural significance, mirroring behavioral patterns, social hierarchies and symbolic connections.

In traditional settlements, socio-cultural factors frequently dictate spatial hierarchies and land use patterns. For example, the separation of public, semi-private and private spaces show how social norms affect privacy, gender roles and how people in a community interact with each other. Religious beliefs and practices also affect how space is organised. Temples, shrines and community spaces are important places for social life.

The role of work and the economy is just as important. In many settlements, homes and workplaces are very close together, which shows how the community makes a living. Weekly markets, craft clusters and workspaces make the settlement livelier and more useful. To make design interventions that fit the situation, you need to know how these social and economic factors work together.

3.3 Settlement Morphology and Spatial Analysis

Settlement morphology is the study of the physical structure and layout of settlements. Conzen (1960) pioneered a systematic methodology for urban morphology, emphasising components such as street configurations, plot delineations and architectural forms. A lot of people in architecture and urban studies use this method to learn about how settlements have changed and how they are built.

Street networks, especially, are very important in determining the character of settlements. Street patterns, whether they are grid-based, linear, or organic, affect how people move, how easy it is to get around and how people interact with each other. Public open spaces, like squares and chowks, are important parts of the settlement because they help people get together and make the area feel more connected.

Another important part of settlement morphology is how open spaces and built spaces relate to each other. Open spaces are good for the environment because they let in air and light, but they are also good for social and cultural activities. To make places that are livable and long-lasting, it's important to find the right balance between built density and open space.

At the macro level, Maheshwar has a mixed morphology with both linear and nucleated patterns. The river serves as the main organising spine, while the fort complex, especially the Ahilya Fort–Rajwada area, serves as the cultural and administrative center. This creates a hierarchical spatial organisation with the sacred riverfront, which has ghats and temples, the royal core, residential neighborhoods or mohallas and expansions on the edges.

At the meso level, the urban fabric is made up of an organic street network (Figure 7) with strong axial connections that point toward the river. This makes it easier to get to the ghats both physically and visually. Many of these streets are used as processional routes that connect temples and homes to the riverfront. This shows how important spatial planning is to rituals. There is a clear hierarchy of movement, from primary streets that connect major points like the fort and ghats to secondary lanes that make a fine-grained and permeable network within residential clusters. There is also a spatial gradation from public areas like ghats and temple forecourts to semi-public streets and chowks and finally to private domestic courtyards. Important places like temples, the fort complex and riverfront plazas serve as nodes that shape how people move, find their way around and interact with each other in the settlement.

Figure 7 (Bottom) Spatial analysis through a street elevation at the street of Maheshwar (Top) Understanding the fabric of the streets of Maheshwar through activity mapping

Source: Authors, Students of B. Arch (2024-29) Batch, School Of Art and Architecture, Sushant University

3.4 Socio-Cultural Dimensions of Settlements

Settlements are fundamentally social constructs, shaped by the interactions, practices and values of their inhabitants. Anthropological and sociological research (Figure 8) has underscored the influence of culture in spatial organisation, encompassing neighborhood layouts and the architectural design of individual residences. Rapoport (1982) stressed that constructed environments convey cultural significance, mirroring behavioral patterns, social hierarchies and symbolic connections.

Figure 8: Sociocultural factors as a result of local customs, culture, myths, beliefs and processions
Source: Authors, Students of B. Arch (2024-29) Batch, School Of Art and Architecture, Sushant University

In traditional settlements, socio-cultural factors frequently dictate spatial hierarchies and land use patterns. For example, the separation of public, semi-private and private spaces shows how social norms affect privacy, gender roles and how people in a community interact with each other. Religious beliefs and practices also affect how space is organised. Temples, shrines and community spaces are important places for social life.

The role of work and the economy is just as important. In many settlements, homes and workplaces are very close together, which shows how the community makes a living. Weekly markets, craft clusters and workspaces make the settlement livelier and more useful. To make design interventions that fit the situation, you need to know how these social and economic factors work together.

3.5 Settlement Morphology and Spatial Analysis

Settlement morphology is the study of the physical structure and layout of settlements. Conzen (1960) pioneered a systematic methodology for urban morphology, emphasising components such as street configurations, plot delineations and architectural forms. A lot of people in architecture and urban studies use this method to learn about how settlements have changed and how they are built.

Street networks, especially, are very important in determining the character of settlements. Street patterns, whether they are grid-based, linear, or organic, affect how people move, how easy it is to get around and how people interact with each other. Public open spaces, like squares and chowks, are important parts of the settlement because they help people get together and make the area feel more connected.

Another important part of settlement morphology is how open spaces and built spaces relate to each other. Open spaces are good for the environment because they let in air and light, but they are also good for social and cultural activities. To make places that are livable and long-lasting, it's important to find the right balance between built density and open space.

At the macro level, Maheshwar has a mixed morphology with both linear and nucleated patterns. The river serves as the main organising spine, while the fort complex, especially the Ahilya Fort–Rajwada area, serves as the cultural and administrative center. This creates a hierarchical spatial organisation with the sacred riverfront, which has ghats and temples, the royal core, residential neighborhoods or mohallas and expansions on the edges.

At the meso level, the urban fabric is made up of an organic street network with strong axial connections that point toward the river. This makes it easier to get to the ghats both physically and visually. Many of these streets are used as processional routes that connect temples and homes to the riverfront. This shows how important spatial planning is to rituals. There is a clear hierarchy of movement, from primary streets that connect major points like the fort and ghats to secondary lanes that make a fine-grained and permeable network within residential clusters. There is also a spatial gradation from public areas like ghats and temple forecourts to semi-public streets and chowks and finally to private domestic courtyards. Important places like temples, the fort complex and riverfront plazas serve as nodes that shape how people move, find their way around and interact with each other in the settlement.

At the micro level, Maheshwar's built form is made up of small, courtyard-based housing types made from local materials and arranged in dense clusters that often reflect occupational or social groups. These homes that look inward do a good job of adapting to the weather and encouraging people to get to know each other. There is a strong connection between built and open spaces. Thresholds and semi-open areas connect homes to the street, especially in areas where traditional weaving is done. The riverfront architecture, especially the ghats, demonstrates a

nuanced response to fluctuating water levels through stepped terraces that accommodate ritual practices while creating a distinct horizontal articulation along the river edge.

Maheshwar's shape reveals a deeply rooted sacred geography, connecting temples, streets and ghats (Figure 9) through ritual pathways that follow the river. Economic activities, especially the making of Maheshwari textiles, help create mixed-use neighborhoods where people can live, work and shop in a small area. The city values public spaces, particularly the ghats, as they serve various purposes, including rituals, socialising and business.

3.6 Experiential Learning and Architectural Pedagogy

People have long known how important experiential learning is in architecture school. Scholars contend that direct interaction with the built environment augments students' comprehension of spatial relationships, materiality and human experience. Field studies, documentation tasks and site analysis are fundamental elements of this educational methodology.

Kolb's (1984) theory of experiential learning stresses how important real-life experiences are to learning. In architecture, this means doing things like surveys, sketches and measurements that help students learn practical skills and how to think critically. Students develop a deeper understanding of the complexities and subtleties of architectural design by interacting with real-world contexts.

The current study conforms to this pedagogical framework by integrating fieldwork and documentation as fundamental elements. It encourages students to look at, think about and understand the built environment, which helps them understand architecture as a whole.

4. Intangible Heritage and Cultural Ecology

Cultural ecology is one of the two major subdivisions of human ecology, the other being human biological ecology (Sutton, 2014). Human ecology is the study of how humans interact with the environment. Julian Steward, in 1955, was the first one to introduce this concept to the world. In the 1960s, anthropologist S.C. Malik brought this understanding to the Indian context. Steward's method was to document the technologies and methods used to exploit the environment, which formed the basis of his definition. Knowledge transfer and knowledge retention are a major part of the concept of cultural ecology. In the chapter on traditional knowledge systems,

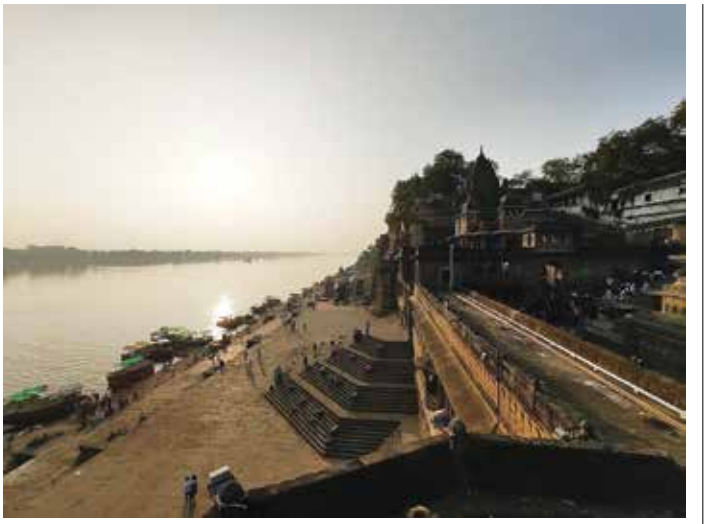


Figure 9: A view of the Ghats
Source: Authors

Sutton (2014) and Anderson (2014) mention that in the late nineteenth and early twentieth centuries, ethnographers recorded as much information about native cultures as they could, believing that such cultures were rapidly disappearing. Worldview, cosmology, astronomical beliefs, hunting theories, agricultural lore and other ecological knowledge were recorded in wonderful detail. Also, it was observed that many cultures coded their ecological knowledge as part of religion. For instance, there is a tribe in Orissa that has folk songs that talk about how mangoes are to be eaten and in great detail about how their skin and even their seed are to be used. This piece talks about knowledge retention as a part of culture. These songs are transmitted orally from generation to generation, which talks about the fact that knowledge is passed down in such cultures even though they are not documented. Kishangarh, which is one of the 36 national geological sites of India, is also an example of where this can be observed. Raja Sawant Singh of Kishangarh altered the natural landscape of the region as per the knowledge he had gathered about it. He used the stream flowing through the land to create gardens and water bodies. Sawant Singh, along with Bani Thani, also contributed a lot to the field of art and this style later came to be known as the Kishangarh School of Art. In Mathura, this can also be observed where the 84 kos came to be perceived as a Padma, or a map of the mind. Also, in Bhubaneshwar, where 1000 temples were built as they had 1000 tanks and knew how to arrange for water. These are all examples of how cultural ecology and, in turn, human ecology affects the environment, both built and natural. (Sutton, 2014) and the International Museums Office (1931) argue that while the study of human ecology can tell us much about human adaptation, the cultural

aspect of adaptation must be examined through cultural ecology. Cultural ecology is about explaining how and why cultures adapt in one way and not another. In essence, culture itself is an adaptive mechanism. Cultures contain several elements, such as social and political systems, settlement patterns and technology and storage that are adaptive in their form and evolve as environments change (Suri, 2019).

In Maheshwar, architecture is inseparable from the rhythms of everyday life. The ghats come alive during aarti, which forms their cultural ecology; streets transform during processions and thresholds become sites of play and interaction. Built form here is continuously activated by use. The town's weaving tradition further deepens this relationship, homes extend into workspaces and the sound of looms becomes as integral to the environment as temple bells. This overlap of domestic, economic and ritual life creates a layered cultural landscape. Maheshwar, in this sense, remains a living heritage town, where history is not preserved in isolation, but sustained through ongoing practice.

4.1 Study of National and International Charters

The study of international and national heritage charters is essential for creating a professional framework for conservation, moving beyond mere repair to a philosophy of "values-based" management. These charters, developed over nearly a century, serve as the ethical compass for architects, urban planners and historians. They provide the standardised vocabulary and methodology required to evaluate what makes a site like Maheshwar significant and how to intervene without stripping away its historical layers (Marshall, 1923).

For a historic town like Maheshwar, studying these charters is particularly vital because the site is a complex "Living Heritage" system. It is not just a collection of 18th-century stone structures; it is a thriving urban center where the economy (handloom weaving), spirituality (Narmada ghats) and domestic life are inseparable from the architecture (Allchin, 1989). By applying these charters, we can ensure that development does not come at the cost of authenticity.

Each charter mentioned in Table 1 addresses a specific dimension of Maheshwar's heritage.

The Early Doctrine (Athens & Venice): These provide the foundation for protecting the physical fabric of the Rajwada and the Nagara temples, emphasising that historic buildings are irreplaceable records of the past.

The Urban and Landscape Context (Washington & Florence): These help us look beyond individual buildings to the "townscape" and the riverfront, protecting the relationship between the built environment and the natural Narmada landscape.

The Human and Intangible Dimension (Burra, Nara, & INTACH): Crucially, these charters shift the focus to the people of Maheshwar. They validate the importance of the weaving community and the religious rituals at the ghats as heritage values that are just as important as the stone walls themselves.

Table 2 maps these global principles onto the specific local context of Maheshwar, illustrating how international theory translates into local practice.

5. Conclusion: Towards Context-Sensitive and Sustainable Design

To create sustainable architectural solutions, it is important to combine contextual understanding, socio-cultural awareness and environmental responsiveness. Modern design conversations are putting more and more emphasis on the need for context-sensitive approaches that respect local identity while also dealing with global problems.

(Michael P. Conzen, 2009) and (Rapoport, 1969) suggested critical regionalism, which calls for architecture that bridges the gap between universal modernism and local traditions. This method tries to make designs that are based on their surroundings but also use modern technologies and ideas. Sustainable design frameworks also stress the need for social equity, ecological balance and efficient use of resources.

The study of human settlements offers a significant basis for these methodologies. Architects can come up with new and useful ways to improve a settlement by learning about the patterns, practices and systems that are already in place. The information learned from this study can help make design rules that improve the quality of the built environment while keeping its unique character.

Maheshwar offers a quiet but powerful reminder that architecture is not merely about building but about shaping relationships between people, place and memory. The way streets guide movement, how built edges frame the river and sky and how homes negotiate between private and public life all point towards a design approach rooted in context and continuity. What sustains Maheshwar is this delicate balance where environment, architecture and culture are not separate systems, but interdependent layers of a living heritage landscape.

Table 1: Questionnaire used to analyse the parameters identified
Source: Authors

General Information about the Settlement	● What is the historical significance of this settlement? ● How old is the settlement and what are its origins? ● What is the primary function of the settlement (e.g., residential, industrial, cultural, mixed-use)?
Demographics and Socio-Cultural Aspects	● What are the major social and cultural practices observed in this settlement? ● What are the predominant languages spoken by the residents? ● What are the primary religions or belief systems in the settlement? ● Are there specific festivals, rituals, or community events that define this settlement?
Spatial Layout and Urban Morphology	● How is the settlement zoned (e.g., residential, commercial, industrial)? ● What are the key landmarks or nodes in the settlement? ● Are there distinct neighborhoods or areas with unique characteristics? ● What is the relationship between open spaces and built structures?
Housing and Building Typologies	● What are the predominant building materials used in this settlement? ● What are the primary architectural styles or influences seen in the buildings? ● What types of housing exist (e.g., single-family homes, apartments, informal ● housing)? ● How are the buildings oriented with respect to climate and topography? Are there examples of vernacular architecture and what are their defining features?
Infrastructure and Amenities	● What modes of transportation are available in the settlement? ● Is the settlement well-connected to nearby areas? ● What types of public infrastructure exist (e.g., water supply, sewage, electricity)? ● Are there sufficient educational, healthcare and recreational facilities? ● How accessible are markets, shops and other essential services?
Environmental Aspects	● What natural features (e.g., rivers, forests, hills) are present near or within the settlement? ● How has the settlement adapted to its climatic conditions? ● Are there any significant environmental challenges (e.g., flooding, deforestation)? ● What are the primary sources of energy in the settlement? ● Are there green or sustainable initiatives in place?
Economic Activities	● What are the main occupations of the residents? ● Are there significant industries or businesses in the settlement? ● What is the economic relationship between this settlement and nearby regions? ● Are there markets or hubs for trade within the settlement? ● How is land use influenced by economic factors?
Challenges and Development	● What are the primary challenges faced by the settlement? ● Are there ongoing or planned development projects in the settlement? ● How has the settlement evolved and what are the current trends? ● Are there any conflicts or concerns related to land use or gentrification?

Table 2: Analysis of Heritage Charters and their application for Maheshwar
Source: Authors

Charter	Core Principle	Application for Maheshwar
Athens Charter (1931)	Focuses on the preservation of artistic and historical monuments and the surrounding environment.	Applies to the conservation of the 18th-century Rajwada complex and the Nagara-style temples (Rajrajeshwar and Chhatrahbhuj Narayan) as key historical monuments.
Venice Charter (1964)	Emphasises conservation and restoration of monuments as both works of art and historical evidence.	Relevant to the use of traditional materials (black basalt, lime plaster and timber), which maintain the material coherence and historical authenticity of the site.
Florence Charter (1981)	Specifically addresses the preservation of Historic Gardens and landscapes.	Applicable to the natural landscape of the Narmada riverfront, where the built environment and natural river edge are treated as a single cultural landscape.
Washington Charter (1987)	Concerns the conservation of historic towns and urban areas	Directly relates to the town's spatial organisation, human-scale streets and the relationship between the inner urban fabric and the riverfront.
Burra Charter (1999)	Highlights social and spiritual significance and the concept of "cultural significance," including intangible values.	Reflected in how the Narmada is a spiritual anchor and how the town's character is defined by everyday practices, rituals and cultural memory.
Nara Document on Authenticity (1994)	Argues that authenticity should be judged within the cultural context to which a monument belongs.	Applies to the Maheshwar handloom tradition, where "authenticity" is found in the ongoing practice of weaving as much as in the physical buildings.
INTACH Charter (2004)	Focuses on the Indian context, particularly the "Living Heritage" where people inhabit and use historic spaces.	This is the most applicable charter; Maheshwar is described as a "living heritage town" where history is sustained through ongoing use, domestic life and economic activity.

This study concludes how we give exposure to our students at the School of Art and Architecture, Sushant University, so that they are exposed to the parameters that govern a city formation as a whole and not architecture alone. The students whose work is featured in this study are from the 2024-29 batch of B. Arch, first-year Architecture.

References

Allchin, B. F. (1989). Conservation of the Indian heritage. Cosmo Publications.

Conzen, M. P., & Slater, I. S. (2009, November). A study in town-plan analysis. Progress in Human Geography. https://doi.org/10.1177/0309132509334948

International Museums Office. (1931). The Athens Charter for the restoration of historic monuments. Athens.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall.

Marshall, J. (1923). A handbook for the use of archaeological officers and others entrusted with the care of ancient monuments. Superintendent Government Printing.

Norberg-Schulz, C. (1980). *Genius loci: Towards a phenomenology of architecture*. Academy Editions.

Oliver, P. (Ed.). (1997). *Encyclopedia of vernacular architecture of the world*. Cambridge University Press.

Rapoport, A. (1969). House form and culture. Prentice-Hall.

Steward, J. H. (1955). *Theory of culture change: The methodology of multilinear evolution*. University of Illinois Press.

Suri, S. (2019). The connection between old and New Delhi with a look at Master Plan 2021. Journal of the Indian Institute of Architects, 4. Indian Institute of Architects.

Sutton, M. Q. (2014). Introduction to cultural ecology. Mira Press.

Ar. Savar Suri researches India's heritage, focusing on overlooked histories, villages and everyday cultural practices. Trained as an architect, he examines links between built form, memory and social change, bridging research and practice. His work foregrounds narratives absent from mainstream discourse. He teaches at the School of Art and Architecture, Sushant University.
Email: savarsuri@gmail.com

Ar. Pallavi Keswani is an educator and researcher in architecture and urban management with over seven years' experience. She integrates research and practice to address urban challenges. Pursuing a PhD, her interests include urban policy, sustainability, affordable housing, participatory planning and emerging urban technologies. She is a faculty member at IES's College of Architecture, Mumbai (IIA-IM-066).
Email: pallavikesw1122@gmail.com

Ar. Keerti Mishra is an architect and designer focused on sustainable design, innovation and user-centered practices. Her doctoral work on product innovation in the circular economy reflects her future-oriented approach. She integrates research, pedagogy and practice, fostering critical thinking and sustainability in design education. She is an Associate Professor at Sushant University.
Email: dixitkeerti23@gmail.com

STUDENT WORK

The Psychological Impact of Architectural Structure and Space

Rehabilitation Centre for Drug De-addiction

By Daxita Verma and Ar. Ojasvi Jagithta

1. Introduction

The architectural design of a rehabilitation centre for drug de-addiction can have a profound psychological impact on individuals undergoing treatment. Thoughtful use of space, natural elements, calming colours and purposeful layouts can promote healing, reduce stress and encourage positive behaviour. The physical environment of a treatment facility can significantly influence the healing process, emotional well-being and overall recovery of individuals undergoing rehabilitation.

1.1 The Need

Himachal Pradesh is currently facing a significant public health challenge due to the rising incidence of substance abuse and the limited availability of rehabilitation infrastructure (Figure 1). Between January 2023 and mid-2025, more than 5,000 drug-related cases were registered under the Narcotic Drugs and Psychotropic Substances (NDPS) Act in the state, indicating the growing scale of the problem (Navbharat Times, 2025). Despite this, Himachal Pradesh has only a very limited number of functional de-addiction and rehabilitation centres, many of which are under-resourced and lack trained medical and counselling professionals (Mind Bliss Hospital, 2024). Recognising this gap, the state government has approved funding for a 100-bed modern de-addiction and rehabilitation centre in Sirmaur, highlighting the urgent need for expanded, accessible and comprehensive rehabilitation facilities to support recovery and social reintegration.

Figure 1: Illustration highlighting recent media reports on drug addiction cases in Himachal Pradesh

2. The Hi(gh)'Story'

For centuries, Himachal Pradesh has witnessed limited cultivation of opium, primarily for personal, familial and medicinal use. However, during the 1970s, the rise of hippie culture led to a significant influx of tourists, who were drawn to the region for drugs, marking a shift in the scale and perception of substance use in the state. In recent years, the situation has intensified. Following the implementation of stricter drug laws in Punjab in 2021, Himachal Pradesh experienced spillover effects, including the migration of drug users, increased addiction rates and a rise in illicit drug cultivation. Today, the state faces an alarming drug crisis, characterised by a growing number of addicts, peddlers and substance abusers, along with a steady increase in drug overdose deaths. According to a report by Indira Gandhi Medical College (IGMC) Shimla, approximately 40% of the youth in Himachal Pradesh are affected by drug addiction (Himachal Watcher, 2016).

2.1 The Problems and Solutions - How to create therapeutic healing?

Canbeyli has shown that experiences involving the visual, auditory, olfactory and gustatory systems significantly impact individuals' emotional and affective states (as cited in Yan, Azmi, Mansor, Wang, & Wang, 2024).

1. Positive Distractions: Positive engagement of the senses facilitates a healing experience. Access and views of nature and outside environments have shown to improve patients' quality of life (Rowlands & Noble, 2008).
2. Avoidance of Negative Distractions: Elements that may cause discomfort or stress, such as abstract or visually overwhelming artwork, should be avoided in the design.
3. Balance of Public and Private Spaces: A careful balance between public and private areas should be maintained to prevent feelings of overcrowding and emotional overwhelm. The successful treatment in a hospital of psychiatry needs an adequate figure range for the individual requirement of transparency vs. protection and activation vs. privacy (Fricke, Halswick, Längler, & Martin, 2019).
4. Social Support and Sense of Community: Design of the healthcare environments can provide opportunities for better communication between patients, their families and the caregivers. Design also can enhance social relationships between patients and their community (DuBose, MacAllister, Hadi, & Sakallaris, 2018).
5. Salutogenic Design Approach:
    - Imageability: Comprehensibility is the ability to understand one's context and circumstances (Golembiewski, 2017). Strengthens identity and a sense of belonging through recognisable and meaningful spatial elements.
    - Manageability: Manageability is the ability to handle everyday realities given one's circumstances (Golembiewski, 2017). Achieved by providing informal, easily accessible spaces that support everyday activities.
6. Sense of Control: Architecture can provide patients with opportunities to be more independent, to have more control over the environment, to act more autonomously and to feel more secure (DuBose, MacAllister, Hadi, & Sakallaris, 2018)
7. Security through a Home-like Environment: Studies show that homelike environments can reduce patients' pain and emotional distress. The six groups of variables - homelike environment, access to views and nature, light, noise control, barrier-free environments and room layout, directly affect or facilitate one or more dimensions of healing (DuBose, MacAllister, Hadi, & Sakallaris, 2018).

The healing structure of the space can be experienced through the spatial form, the interaction between space and the body, environmental experiences and sensory stimulation. These factors collectively contribute to the effect on mood through the healing (Assem, Khodeir, & Fathy, 2023) (Figure 2).

3. Case Studies

Various primary and secondary case studies were done to understand the spaces and the performance of design decisions in real-world conditions.

The primary case studies included two rehabilitation facilities in and around Delhi. The National Drug Dependence Centre, Ghaziabad, represents a hospital-oriented design approach, while Roar Wellness Rehabilitation Centre reflects a luxury-oriented, private rehabilitation model. An additional primary case study was conducted in Himachal Pradesh to gain a deeper understanding of the local user profile and their specific needs.

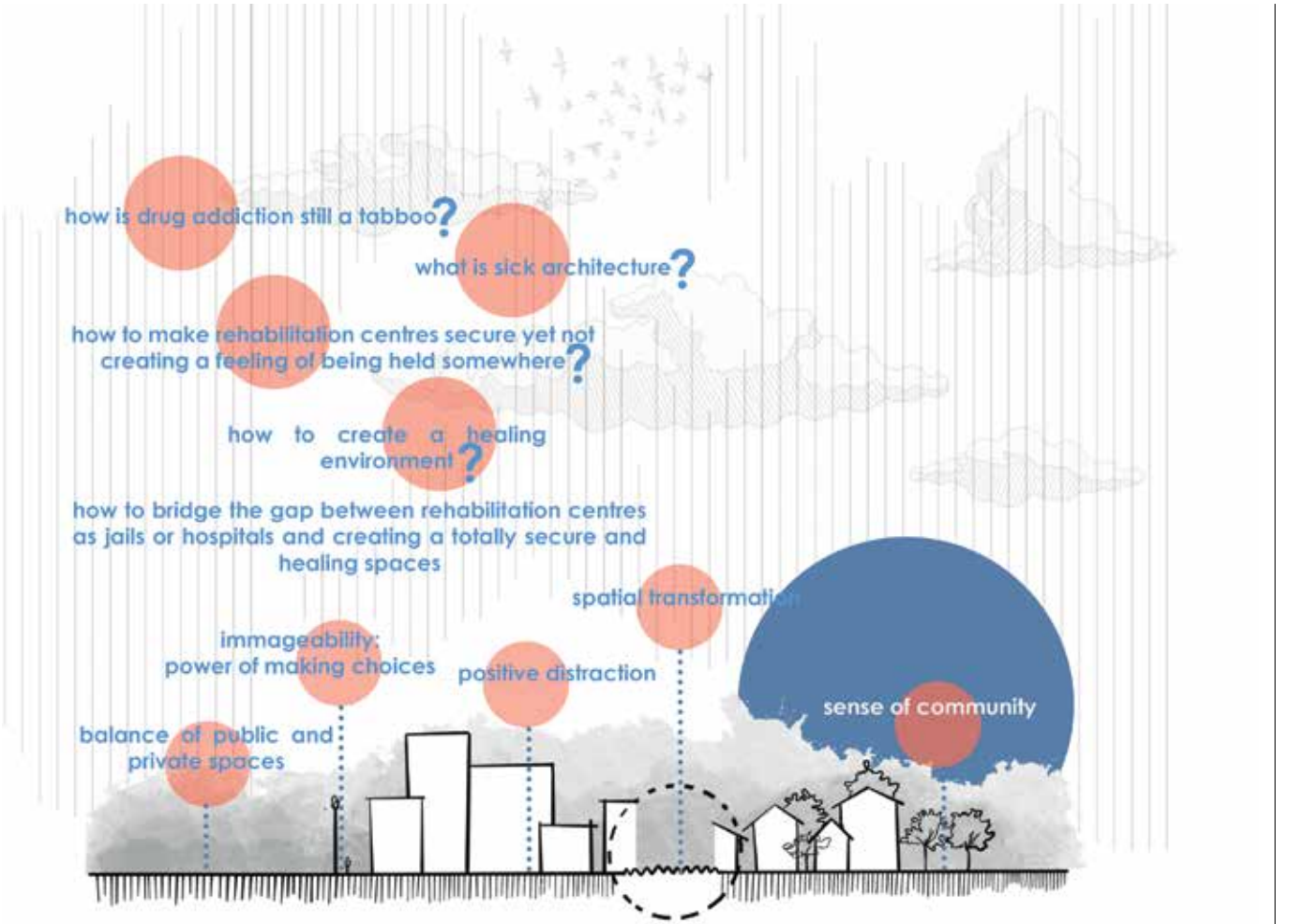


Figure 2: Illustration highlighting the key challenges in the design of rehabilitation centres

The literature case studies expanded beyond conventional rehabilitation centres to include community centres and prison environments, allowing a broader understanding of spatial planning and user experience. This approach helped identify design strategies that respond to varying degrees of control, privacy and social interaction. The objective was to bridge the design gap between a 'prison-like' environment and a 'hospital-like' environment. The secondary case studies included Hangzhou No. 1 Social Welfare Institute, Storstrøm Prison, Vejle Psychiatric Hospital and the Rehabilitation Centre Groot Klimmendaal (Table 1).

3.1 Observational Mapping

Observational Mapping is done mainly to understand how users interact with built environments, identify problem areas, or optimise layouts. Figure 3 illustrates 'a day in rehabilitation" through a series of connected activities like sleep, personal grooming, meditation, fitness, activities, etc., showing the daily routine or patient journey within a rehabilitation context. This helps to track patterns of human behaviour and to understand the user more deeply.

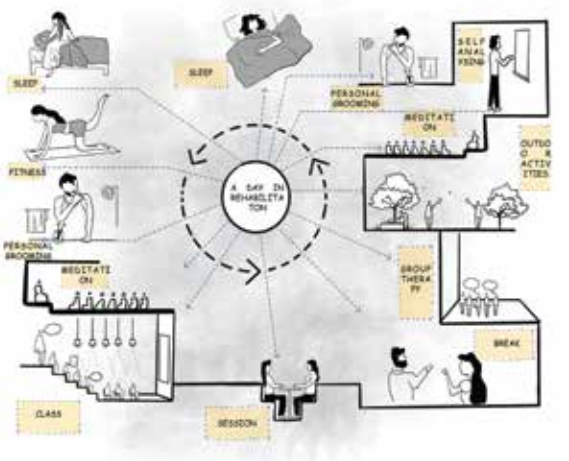


Figure 3: Illustration depicting a patient's normal routine in a rehabilitation centre

4. Site Location and Analysis

The proposed site is located at Kotla Baorg, Sub-tehsil Narag, Sub-division Pachhad at Saharan, in Sirmour District, Himachal Pradesh. The identified land is owned by the Department of Animal Husbandry, Government of Himachal Pradesh.

Table 1: Comparative Analysis of Literature Case Studies of Drug De-Addiction Centres Based on Architectural and Therapeutic Design Criteria (Source: Author)

Type	**Hangzhou No. 1 Social Welfare Institute**	**Storstrøm Prison**	**Rehabilitation Centre Groot Klimmendaal**	**Vejle Psychiatric Hospital**
Year	2022	2017	2011	2017
Country	China	Denmark	The Netherlands	Denmark
Function	Social Welfare	Prison	Mental Health	Mental Health
Area (in m^2)	36880	32000	14000	17000
Accessibility	Close to town	Close to village	City outskirts	Close to city
Levels	3	2	6	2
Accommodation Capacity	~80 people	250 inmates	60 patients	90 patients
Approx. m^2 per resident	~120	128	233	188
Residential Segregation	Female/male/ elderly/student	Normal/Max security	None	None
Patients per unit	No data available	7	-	15
Single Bedrooms	No data available	✓	✓	✓
Living Room	✓	✓	✓	✓
Courtyard	✓	✓	✓	✓
Gym/Fitness	✓	✓	✓	✓
Library	×	✓	×	×
Workshops	✓	✓	×	×
Restaurant/Cafe	×	×	✓	✓
Swimming Pool	×	×	✓	×
Theatre	×	×	✓	×
Clinic	✓	✓	✓	✓
Prayer Hall	✓	✓	×	×
Activities and Community	✓	✓	✓	✓

The site covers a total area of approximately 157 bigha and 7 biswa, equivalent to nearly 26 acres. It experiences a temperate climate, with cold winters where temperatures often drop below freezing and mild, pleasant summers. The terrain is predominantly hilly with steep slopes, interspersed with areas of gradual slope and narrow valleys. A river flows along one edge of the site, contributing to its natural character. The site features pine forests and wild alpine vegetation. Previously under the Department of Animal Husbandry, it contains basic infrastructure such as hostels, animal sheds and transport connections that can support development of a drug rehabilitation centre.

Surrounded by mountains with the Giri River along one edge, the area has low population density and few nearby residences. Extensive agricultural land nearby shows farming as the main occupation, though the site is remote and lacks a proper metalled road for direct access.

4.1 Topography Analysis

Topography analysis is crucial in understanding the physical characteristics of a land area. It helps in the planning, design and development of spaces by providing insight into the natural terrain. Figure 4 shows the easy water run off areas on the site along with drainage patterns and relief map. Slope and

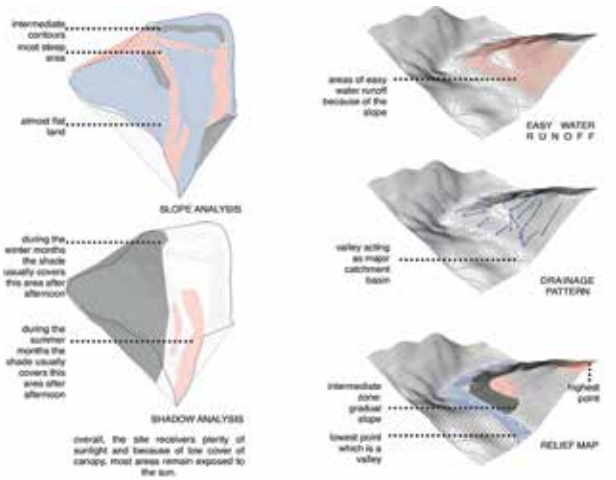


Figure 4: Topographical Analysis of the Selected Site

shadow analysis also helps in identifying the parts that are best for construction.

5. Conceptual Framework

The main concept of the project is to provide a healing environment to the patients through well designed spaces as issues such as depression, anxiety and unhealthy living often stems from the spaces we live in.

5.1 Including the "daily routine of a normal person"

The design aimed to integrate elements of a normal daily routine to ensure that patients do not perceive the rehabilitation centre as a foreign or isolated environment. This approach helps ease the transition back into everyday life after recovery and reduces the risk of relapse caused by difficulty in adapting to normal living conditions.

To support this objective, a shopping street was introduced as part of the public zone to replicate everyday activities and encourage casual social interaction. In addition, a family accommodation block was provided, allowing family members to visit and stay with patients for short durations if desired. Patient preference for receiving care at home appears to be driven by their desire to be with loved ones, suggesting that the ability to accommodate visitors is an important feature to support healing (DuBose, MacAllister, Hadi, & Sakallaris, 2018).

Public and community-oriented spaces were designed to promote informal interaction without making patients feel confined. The integration of family accommodation within this zone further reduces the institutional character of the facility, introduces normal social presence and fosters a sense of inclusion, belonging and social reintegration for patients.

5.2 Natural environment with sensory stimulation

The design has incorporated waterscapes and aromatic trees. Having plenty of natural spaces as a positive distraction, which indirectly stimulates human senses, also helps to heal faster. The waterscape serves as a visually appealing element as well as provides white noise (auditory sense) and the aromatic trees serve the purpose of stimulating olfactory sense along with visually appealing.

5.3 Power

The ability to make choices results in the person feeling a sense of power that helps the person heal faster. The design achieves this by -

- providing different choices in recreational zone
- providing choices through flexible furniture in interiors

Providing choices through design inside and outside the building will help the patient. Providing different types of spaces in recreational zones and flexible furniture will allow patients to reduce stress and anxiety. The patient can retire into a private zone whenever needed.

5.4 Security through familiarity and materials

A sense of familiarity often provides a person with a sense of security and safety that helps the patient to reduce stress and heal faster. By providing design elements and materials that are inspired from the traditional architecture of Himachal will help patients feel more at home and reduce the stress level.

5.5 Balance of public and private

Segregating the private, semi private and public zones through recreational buffer and different levels helps to achieve a smooth transition and hence create a balance between public and private spaces that help in the patient's recovery. This helps the blocks to be segregated yet connected with each other fostering a seamless flow of movement.

5.6 Focusing on the needs of different users because "every user's symptoms differ and so should the spaces"

Flexible spaces and flexible furniture in the interiors were designed so that if a user is suffering from anxiety or aggression that person has the choice to have some quiet spaces with privacy and the users with depression could have the choice to interact with others. Hence having flexible spaces was essential to cater to every user's needs (Figure 5).

6. Master Planning

The zoning strategy was developed to segregate public, semi-public, private, quiet-private, activity and recreation areas. A gradual transition from public

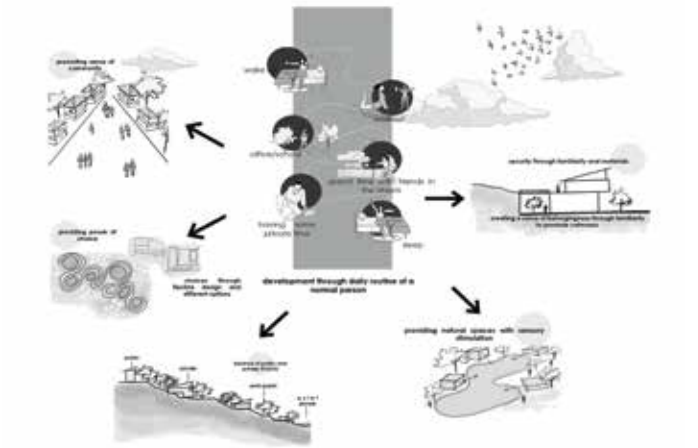


Figure 5: Diagrammatic representation of the design conceptual framework

to semi-public, private, recreational and finally quiet zones was established from the site entrance inward, with the natural hill slopes facilitating smooth spatial movement.

The design primarily focused on three forms of sensory stimulation to support healing and emotional well-being. Olfactory stimulation was achieved through the use of native aromatic trees, while visual stimulation was addressed through ornamental tree species, integrated waterscapes and spatial planning that frames views of the surrounding mountains and the Giri River. Auditory stimulation was incorporated through water features functioning as white-noise elements and landscape planning that encourages birds and insects, enriching the environment with natural sounds (Figure 6).

The landscape design incorporated three categories of native trees - ornamental, aromatic and medicinal, strategically placed along walking trails, waterscapes and activity areas. Recreation zones were designed to offer users a choice between private and community-oriented spaces, allowing individuals to either withdraw during moments of overwhelm or engage socially when experiencing loneliness (Figure 7).

Figure 6: A view of the vocational blocks with a waterscape around

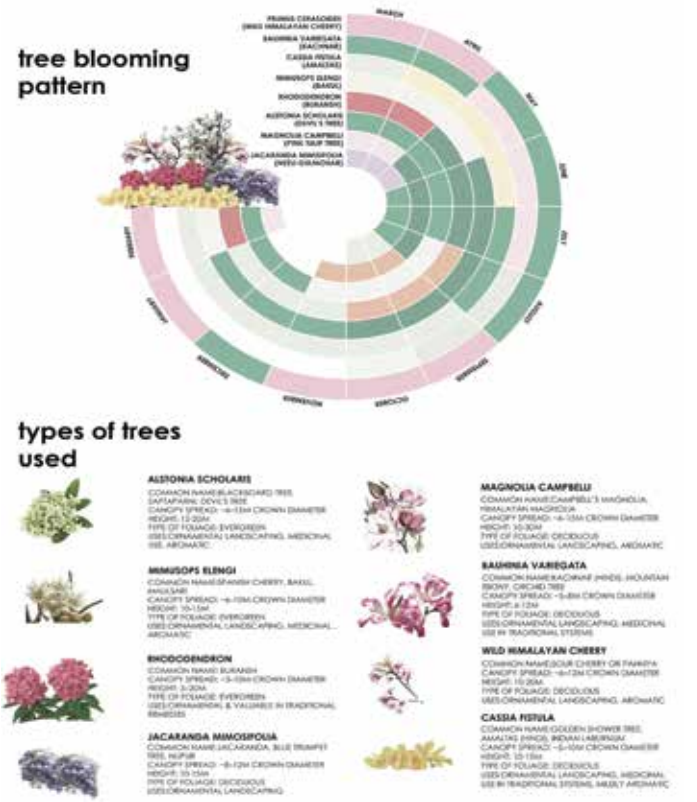


Figure 7: Study of Blooming pattern of tree species selected for the site, along with their characteristics

The library and meditation hall were positioned within the quiet zone overlooking the Giri River to reinforce a sense of calm. A walking trail was introduced along the sloped river edge where construction was not feasible, creating a low-impact recreational space. Existing structures within the planning zone were retrofitted and reused to enhance sustainability and reduce construction costs.

To incorporate elements of everyday life within the rehabilitation environment, a shopping street was introduced in the public zone. This space accommodates daily amenities and encourages informal movement and interaction, enabling patients to gradually reconnect with routine social activities. Additionally, a family accommodation block was integrated within the public zone, allowing short-term stays for visiting family members. This intervention strengthens emotional bonds, reinforces social support systems and contributes significantly to the recovery process (Figure 8).

7. Patient's Residence

The patient residence was designed recognising that different users have diverse needs, often overlooked in rehabilitation centre design. As patients spend significant time in their rooms, it is essential these spaces remain flexible and responsive to varying

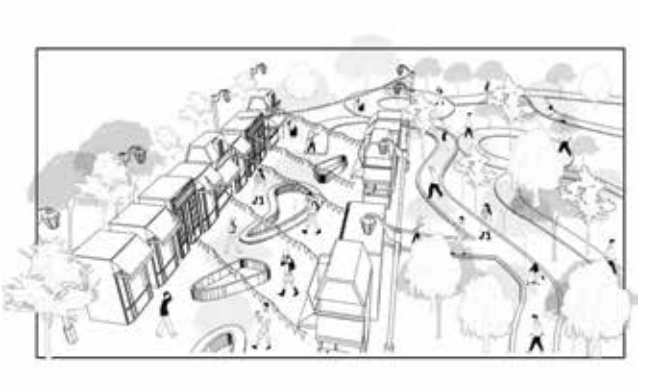


Figure 8: Different views of the site showing the design elements incorporated

emotional states. Accordingly, interiors were planned to accommodate changes in user's mood and behaviour.

The residence comprises shared and single-occupancy rooms, the latter for patients exhibiting extreme aggression and requiring greater privacy and safety. Several community interaction spaces were included to encourage social interaction, including common sitting areas and a roof garden.

7.1 Life in Inpatient's Room

The patient rooms were inspired by traditional Himachali interiors to create familiarity and sense of belonging. Interior elements were planned to be flexible and adaptable to accommodate varying physical and psychological needs. The sitting spaces draw inspiration from traditional Himachali interiors, fostering a sense of familiarity (Figure 9).

The furniture, particularly the bed, was multifunctional. It could be used conventionally, folded to create extra floor space, or allow patients with body aches to rest on the floor if preferred. Rotatable slats provide adjustable spatial division, enabling patients with anxiety to create personal space while allowing social interaction for those feeling lonely.

Each room included a window-cum-sitting area oriented toward a serene view to promote calmness and connection with the outdoors. Additionally, three linear ribbon windows enable continuous supervision by nursing staff without physical entry, ensuring safety while maintaining privacy (Figure 10).

8. Conclusion/Discussion

This article examines how architecture can function as an active contributor to healing rather than merely providing a functional setting. The project demonstrates that architectural structure and

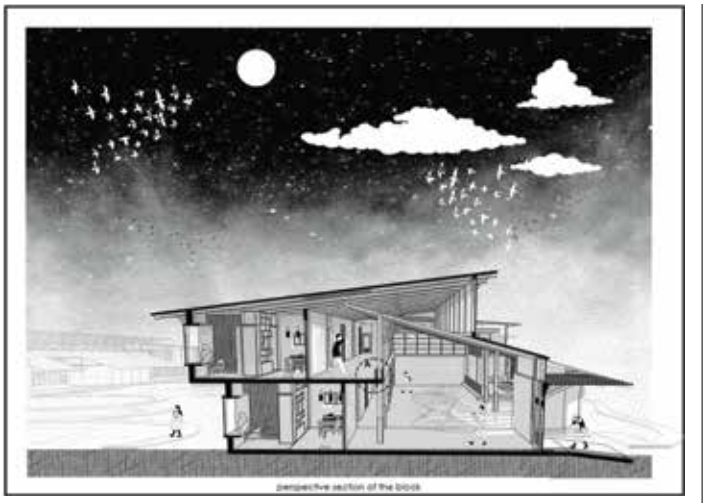


Figure 9: :Sectional View of the Patient's Block

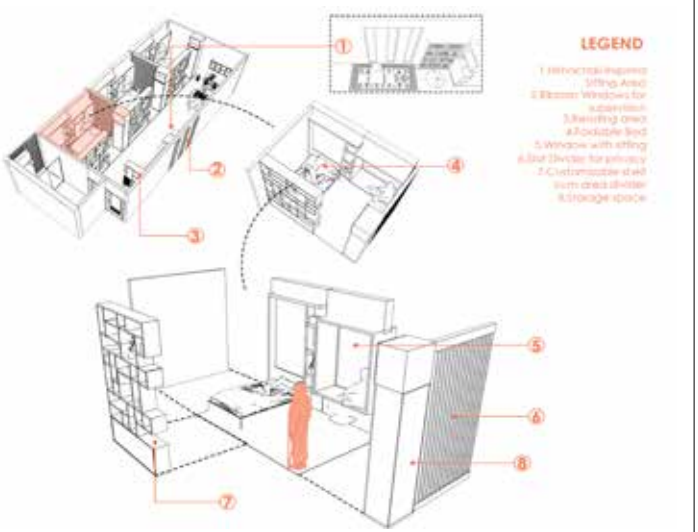


Figure 10: Illustration of Life in an Inpatient's Room

spatial organisation act as powerful psychological tools influencing emotional well-being and recovery. Through deliberate integration of natural light, access to green spaces, intuitive circulation and a considered balance of communal and private areas, the design seeks to create a therapeutic environment. These strategies aim to foster safety, dignity and a sense of belonging, while countering the isolation and emotional vulnerability often associated with addiction.

The article recognises the diversity of users and their psychological needs, emphasising flexible and adaptable spaces that respond to varying requirements for privacy, interaction and independence - an aspect frequently overlooked in rehabilitation design. Ultimately, the study reinforces the importance of human-centred, psychologically informed architecture in supporting recovery, empowerment and reintegration.

References

Assem, H., Khodeir, L., & Fathy, F. (2023). Designing for Human Wellbeing: The Integration of Neuroarchitecture in Design—A Systematic Review. *Ain Shams Engineering Journal, 14*(6). doi:10.1016/j.asej.2022.102102

DuBose, J., MacAllister, L., Hadi, K., & Sakallaris, B. (2018). Exploring the Concept of Healing Spaces. *HERD: Health Environments Research & Design Journal, 11*(1), 43–56. doi:10.1177/1937586716680567

Fricke, O., Halswick, D., Längler, A., & Martin, D. (2019). Healing Architecture for Sick Kids: Concepts of Environmental and Architectural Factors in Child and Adolescent Psychiatry. *Zeitschrift für Kinder- und Jugendpsychiatrie und Psychotherapie, 47*(1), 27–33. doi:10.1024/1422-4917/a000635

Golembiewski, J. (2017). Salutogenic Architecture in Healthcare Settings. In M. Mittelmark, S. Sagy, M. Eriksson, G. Bauer, J. Pelikan, B. Lindström, & G. Espnes (Eds.), *The Handbook of Salutogenesis* (pp. 267–276). Springer. doi:10.1007/978-3-319-04600-6_26

Himachal Watcher. (2016, September 10). *Drugs and narcotics menace in Himachal: 133 kg charas, 10 kg opium, 223 grams heroin seized in 3 months.* Retrieved from Himachal Watcher: https://himachalwatcher.com/2016/09/10/drugs-and-narcotics-menace-in-himachal-133-kg-charas-10-kg-opium-223-grams-heroin-seized-in-3-months/

Mind Bliss Hospital. (2024). *Drug Addiction among Youngsters in Himachal Pradesh*. Retrieved from Mind Bliss Hospital: https://mindblisshospital.com

Navbharat Times. (2025, July 31). *Drug menace continues to spread in Himachal, with only five de-addiction centres available for treatment, the central government revealed in the Rajya Sabha.* Retrieved from Navbharat Times: https://navbharattimes.indiatimes.com/state/himachal-pradesh/shimla/himachal-pradesh-udta-himachal-drug-crisis-only-5-rehab-centers-over-5000-ndps-cases-registered/articleshow/123015669.cms

Rowlands, J., & Noble, S. (2008). How Does the Environment Impact on the Quality of Life of Advanced Cancer Patients? A Qualitative Study With Implications for Ward Design. *Palliative Medicine, 22*(6). doi:10.1177/0269216308093839

Yan, S., Azmi, A., Mansor, N., Wang, Z., & Wang, Y. (2024). Healing Spaces as a Design Approach to Optimize Emotional Regulation for Patients with Mood Disorders. *Buildings, 14*(2), 472. doi:10.3390/buildings14020472

All images courtesy author

Daxita Verma is a recent architecture graduate from the School of Architecture, Rajiv Gandhi Government Engineering College, Kangra. Her thesis delved into the psychological impact of architectural spaces and explored how impactful spaces can be designed for habitation. She is currently working with the Urban Lab, Ahmedabad.
Email: daxita.verma20@gmail.com

Ar. Ojasvi Jagithta (A27146) is an urban planner and architect, currently serving as an Assistant Professor at the School of Architecture, Rajiv Gandhi Government Engineering College, Kangra, Himachal Pradesh. She focuses on fostering sensitive design thinking in her students, particularly emphasising context-responsive architectural approaches suited to the unique environmental and cultural conditions of the Himalayan region.
Email: ojasvi.soa.hp@gmail.com

ARTICLE

The Louvre Abu Dhabi

A Masterclass in Architecture and Experience

By Prof. Dhiraj Salhotra and Ar. Tania Shah

Great buildings are appreciated for their beauty, grace, and often, as engineering marvels. The Louvre Abu Dhabi is one such building that continues to attract visitors for its content and to witness the shell's gigantic scale, which brings the famous 'Rain of Light'. The Louvre Museum project is a unique architectural marvel that befits the surrounding landscape, and its beauty lies in how it creates an ambience that enables visitors to reach it comfortably and with care. The framed vistas of experiential changes in volume, light and shade and more, are a unique addition that stimulate the senses and provide the visitor with an immersive, complete experience. En route, one can witness the construction of another masterpiece, the Zayed National Museum, designed by Foster + Partners.

Located on Saadiyat Island in Abu Dhabi, the Louvre Abu Dhabi is a mesmerising blend of art, architecture and nature. The approach to the museum is strikingly serene, set against the calm waters of the Arabian Gulf. The museum's design, a collaboration between Jean Nouvel and the UAE government, is a deliberate echo of traditional Arabic architecture, reimagined for the modern era.

Approaching the Museum: A Journey of Discovery

The journey to the Louvre Abu Dhabi is an experience in itself. The gleaming white dome of the museum forms a silhouette that modulates the skyline, beckoning visitors to a world of art and wonder. The approach is designed for a slow reveal, with the museum's massing and form unfolding gradually as one approaches the museum (Image 1). The narrow streets and walkways leading to the entrance are lined with date palms and water features, creating a sense of tranquility and anticipation.

Image 1: Approach Road to the Museum at Abu Dhabi

Mystique Site Planning: A Harmonious Blend of Land and Sea

The museum's site plan is a masterclass in balancing land and sea. The complex is designed to minimise its footprint, with buildings and walkways (Image 2) carefully positioned to preserve the natural coastline. Vehicular traffic is segregated from pedestrian paths, creating a safe and peaceful environment for visitors. The main entrance is located on the landward side, while a separate dock allows visitors to arrive by sea, adding to the sense of drama and arrival.

It's a perfect blend of Nature and Design

The museum is nestled amidst a beautifully landscaped garden, with native plants and trees that evoke the spirit of the Arabian desert. The landscape

Image 2: Defined walkways from shaded parking areas towards the museum.

design, featuring water features, walking paths, and shaded areas, invites visitors to explore and relax. The garden's focal point is a large reflecting pool, which mirrors the museum's dome and creates a sense of symmetry.

As one strolls through the gardens, one begins to discover hidden groves of date palms, tranquil seating areas, and stunning views of the surrounding waters. The landscape is designed to evoke the traditional Arabic concept of an "oasis", where art, nature and culture blend seamlessly together. The museum's white walls and screens (Image 3) are a deliberate design element, framing views of the surrounding sea and sky while reducing glare (Image 4).

The screens, composed of intricately patterned white elements, filter the intense desert sunlight, casting dappled shadows on the ground. As one navigates through the complex, the white walls and screens create a sense of rhythm, drawing eyes towards the sea and the horizon.

Image 3: Approach to the Museum through covered corridor and Screened sides.

Image 4: Architecture blends the Sea and Sky.

The Water's Edge: A journey of seamless transition between Sea and the Dome

The museum's design ensures a seamless transition between the built environment and the water's edge. The reflecting pool and surrounding walkways create a sense of intimacy with the sea, inviting visitors to linger and take in the views. As you stand at the water's edge, the sound of the waves and the scent of the sea create a sensory experience that's both calming and invigorating.

The museum's iconic dome (Image 5) is its crowning glory, a 180-meter-diameter structure that appears to float (Image 6) above the complex. Weighing 7,500 tons, the dome is composed of 7,850 stars arranged in eight layers, filtering sunlight to create a breathtaking "rain of light" effect. This ingenious design not only provides shade but also reduces energy consumption by minimising the need for cooling. As

Image 5: Magnanimous Dome, filtering light, Sky and the Sea.

Image 6: Sea Side view of the Dome resting over the floating white masses.

one steps under the dome, the interplay of light and shadow creates a mesmerising pattern, setting the tone for the artistic journey ahead.

The Louvre Abu Dhabi is more than just a museum – it's a self-contained city with 55 individual buildings, including 23 galleries, surrounded by water. The buildings' white, low-lying design echoes traditional Arab settlements, while the dome's intricate pattern pays homage to Islamic architecture. While exploring the museum, hidden courtyards appear, offering picturesque vistas, tranquil gardens, and stunning views of the surrounding waters.

The Galleries: A Journey Through Art and Culture

The museum's galleries are designed to showcase a diverse collection of artworks, from ancient civilisations to contemporary masters. The curatorial approach is thematic, with each gallery exploring a specific theme or era. As one wanders through the galleries, one can easily encounter masterpieces by artists like Leonardo da Vinci, Vincent van Gogh and Picasso, alongside works by Emirati and Middle Eastern artists.

The Louvre Abu Dhabi is a sensory experience, with a carefully crafted ambience that complements the art and architecture. The Louvre Abu Dhabi is a champion of sustainable design, featuring passive cooling, efficient HVAC systems and a seawater cooling system.

Experiencing the Museum

The spatial experience of walking in the museum is, in itself, a meditative immersion. The quiet, confident and profound play of architectural volumes creates an engagement that guides the journey. A building by Architect Jean Nouvel stands as a testament to a manifesto that writes authoritatively with light, shade, scale and movement. Paradoxically, the monumental dome appears to float over the white volumes, almost effortlessly, defying the weight and size that it boasts externally. It seamlessly juxtaposes a futuristic vision with ancient memory. Notably, the structure is contemplative without being imposing and decorative.

Light, Shade and Movement

Unlike conventional museums, the structure leads the journey with its remarkable superiority over the spectacle. Here, the geometric lattice filters sunlight into the space below, referred to as 'rain of light', takes the centre stage, as it tracks the atmosphere shifts, with every movement of the sun. The fleeting rays become immersive, transforming the space throughout the day. The intermittent pauses to rest, contemplate and gratify the self are driven through constant engagements with light falling on the floors, walls, enlivened with people moving through the space, rather than to read labels or analyse the artworks displayed (Images 7 and 8).

The museum itself unfolds like a miniature city, with a series of interlinked galleries, courtyards and passages inspired by Arab medinas. The experience is intentionally human in scale. You're never overwhelmed, yet always aware of the vastness above. The intimacy of the galleries set against the dome's enormity creates a quiet tension that keeps one alert, grounded, and reminded to be fully present.

Image 7: Dominance of Space that is immersive for contemplation and meditatively calm.

Image 8: The play of light and shade over tactile impulses of material and form.

It's a powerful statement in architecture that builds a relationship with the exhibits, enhanced by the surroundings as a mild background music to the entire display. The neutral palette, controlled daylight, and restrained materiality ensured that the building was not loud but made its quiet presence felt. And in doing so, it allowed moments to pause, something rare in most global museums today. Water is just as vital to the spatial narrative. With channels weaving between the structures, the sea brings a sense of calm and reflection, both literal and symbolic. The sound, the breeze, and the seamless flow between inside and out dissolve boundaries, making the museum feel open, alive, and breathing.

The intentional humility of the architecture: despite its global stature, the Louvre Abu Dhabi does not demand attention through ostentation or ornamentation. Instead, it relies on the spiritual simplicity of proportion, geometry, climate responsiveness and cultural context. It is modern, yet timeless - global, yet deeply regional.

Unlocking the Power of Cultural Fusion with meaning

The Louvre Abu Dhabi is more than just a museum – it's a symbol of cultural fusion and exchange. By blending traditional Arabic architecture with modern design, the museum creates a unique space that celebrates the rich cultural heritage of the UAE and the world. As one explores the museum, it unfolds a story about the power of art and architecture to bring people together and transcend borders. The Louvre Abu Dhabi is a must-visit destination for anyone looking to experience the best of art, culture, and architecture (Image 9).

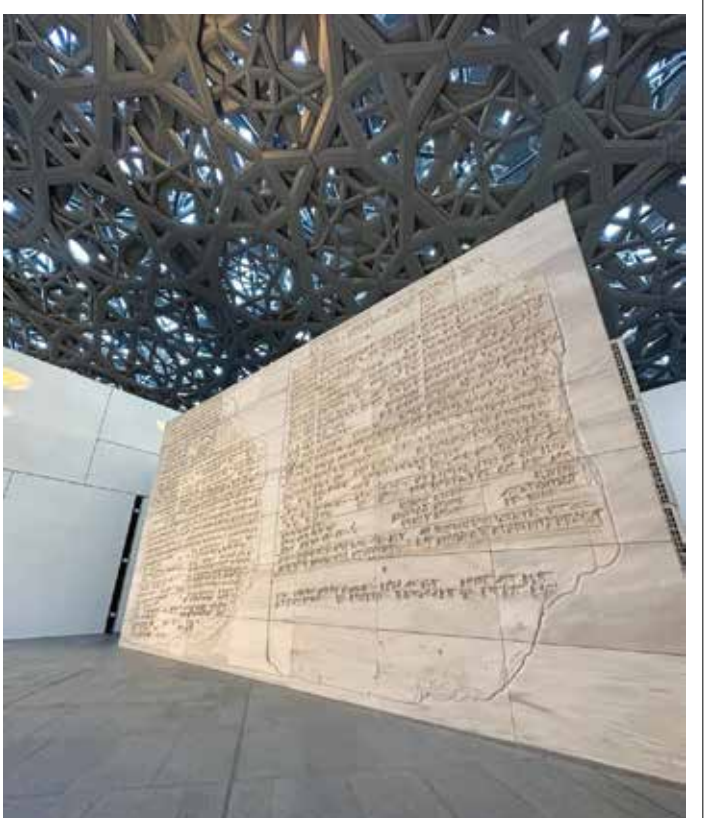


Image 9: Timeless engraving and ancient scale that mesmerises the museum experience.

As a journey through a museum that displays works of art, the most remarkable feature that sets it apart is the space itself. The feeling of walking under that dome. The shifting light. The silence. The measured pace the building imposes lingers long after the journey is completed. The Louvre Abu Dhabi adds pauses that induce a slow-down, and in that slowing, it reminds us why architecture matters.

In this museum, architecture isn't just a setting; it takes centre stage. The experience it creates stands as a masterpiece of its own. Whether you are an art enthusiast or simply looking for a unique experience, this museum provides an inspired and enriched experience.

All Photos credit - authors

Prof. Dhiraj N. Salhotra, (A11237) is the Principal of Thakur School of Architecture & Planning, Mumbai, with over 25 years of professional and teaching experience. His institution is recognised with membership of the United Nations Academic Impact, for contribution towards the promotion of the UNSDGs. He is a Ph.D. Research Scholar and his area of research is identifying design pedagogy while creating a social response in managing Urbanisation. He has presented on sustainability and humanising agenda in several National and International Conferences and Seminars.
Email: dhirajsalhotra@gmail.com

Ar. Tania Shah is the Founder of TS Design Works and a distinguished Professor at Rizvi College of Architecture. With over two decades of experience, she specialises in culturally resonant, sustainable residential and commercial design. A recipient of the Eminent Women Award, she integrates phenomenology and heritage into modern spaces. She is also a recipient of the MASA Best Teachers Award.
Email: tania@tsdesignworks.co

Mumbai's Vertical Vertigo

The Difference between Growing and Developing

Ar. Samir Fayaz Shaikh

I looked out of my office window yesterday and for a brief moment, I didn't recognise the city I've loved, built in and argued with for twenty-five years. The Mumbai skyline, once defined by the elegant spires of colonial architecture and the low-key drone of chawls, is undergoing a violent transformation. Where once there was a skyline that was a rhythmic "jugalbandi" (improvisation) between heritage and development, there is now a wall – a relentless, concrete wall of high-rise towers jutting out of the earth like misplaced crescendos in a cacophony.

From Colaba to Dahisar, the horizon is a forest of cranes and concrete towers racing towards the skies. Spurred by an unabated tsunami of redevelopment, the city is in the grip of a vertical revolution. To many, this represents progress; to others, a symptom of crony capitalism. But the community of architects, developers and policymakers must stop and ask themselves: at what cost?

The central driver is a liberal, often irrational, increase in Floor Space Index (FSI). Developers and financiers see an opportunity to unlock profits through incentivised development; land owners find an opportunity to monetise their assets and the municipal corporation's revenues improve through development charges.

My concern is not with height itself, nor is it with the crucial and necessary process of redeveloping old buildings. The danger lies in the *unplanned* nature of this vertical sprint. Uncontrolled FSI is not a neutral technicality. It translates into towers that pack more people into smaller footprints without adequate provision for the services. When FSI and redevelopment incentives are handed out without analytical reasoning, strategic thinking and a total disregard for land capacity or sustainable density, not only are we merely transferring, rather than resolving, the underlying issues but we are also compounding them. The infrastructure beneath our feet - the sewers, water lines and roads - is largely from a bygone era, buckling under an unsustainable load that they weren't designed for.

Urban Design, which should be the guiding principle of this transformation, has been relegated to the sidelines. When the public realm is sacrificed to maximise development, the social fabric gets ripped apart. Children lose safe places to play, elders lose local gathering spots and the city's informal economic sector is pushed to the margins.

Growth vs Development: A Crucial Distinction

There is an important conceptual distinction that we must realise: Growth versus Development. Right now, Mumbai is growing. It is swelling. It is stacking people on top of people in 40, 50 and 60-storey towers on plots of land that were barely designed to support a 4-storey building. This is growth. It is unplanned, reactive and driven entirely by the calculators of financial feasibility rather than the compass of urban liveability.

Development, on the other hand, is deliberate. It is planned. It creates an equitable society and a resilient environment. Development asks, "Can this land hold this?" Growth asks, "How much FSI can I extract?" The market's appetite for profit drives growth; a vision for the future drives development. When growth outpaces planning, we don't build a better city; we build a dystopian environment. You can have brisk growth in housing stock while the city's vulnerability to flooding, its social equity and its civic amenities all worsen. That is not progress; it is self-sabotage.

Consider a typical redevelopment project in a neighbourhood like Dadar or Bandra. A building that

once housed 20 families on a 9-meter-wide road is replaced by a 40-storey tower with 200 apartments, all leveraging an FSI of 4 or 5 through various incentive schemes. This means 10 times the number of cars trying to use the same narrow road, 10 times the demand on the water supply (already facing a 10-15% cut) and 10 times the load on the century-old sewerage lines. This self-inflicted vulnerability is a serious concern.

The Fire in the Sky

Perhaps the most alarming consequence of this vertical scramble is the compromised focus on fire and life safety. With the proliferation of pencil-thin high-rises in narrow lanes, are we genuinely prepared? High-rise living raises particular fire and life-safety challenges — from vertical evacuation to the need for robust internal fire-fighting and suppression systems. Mumbai's fire services have been modernising, but they also report significant workforce and resource gaps. At the same time, the city recorded over 5,300 fire incidents in 2024 (as per data from Mumbai Fire Brigade) — an upward swing that cannot be ignored. Are we giving enough attention to inspection regimes, annual audits, compliance enforcement and emergency response capability? The answer – on current evidence – is a resounding: not yet. We are, in our rush to build, ignoring the human cost of a potential disaster.

A Policy Lag: The DCPR Disconnect

This brings us to the core regulatory mechanism: the Development Control and Promotion Regulations (DCPR) 2034. While it was heralded as a progressive document, it is, in my view, ineffective in regulating this surge in high-rise, high-density development. The pace and form of recent development suggest that the regulations are increasingly reactive, inconsistent and ineffective in addressing present-day pressures. The DCPR 2034 has inadvertently become a "promotion" document more than a "control" one, opening the floodgates to incentive FSI.

DCPR 2034 is too one-size-fits-all. It fails to recognise the specific carrying capacity of different areas and neighbourhoods. A blanket regulation for the entire island city is neither preferable nor viable.

Urban development is inherently market-driven and the market is nimble. It moves fast. Regulations, by contrast, are static. There is a massive sync issue. Our Development Plan follows a twenty-year cycle. But the city changes every five years. A twenty-year vision (which itself takes a few years to draft), in a hyper-urbanising economy, is obsolete on arrival

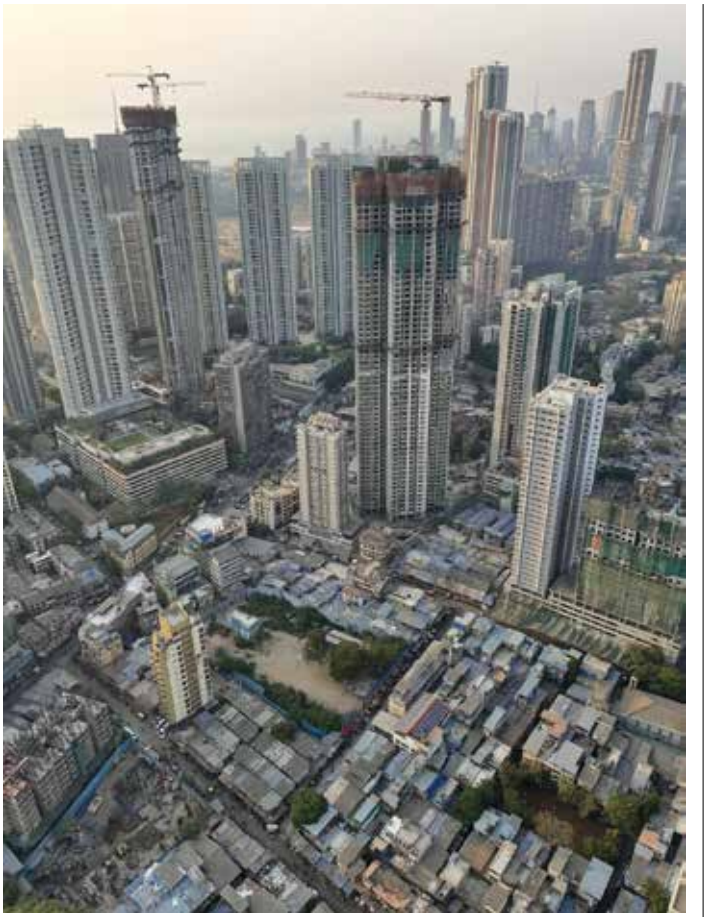


Figure1: Aerial view of Mumbai high rises under construction.
Source: Shutterstock

(OOA). There is an urgent need to revisit the DCPR, to adapt and amend it based on current market realities and, more importantly, the city's infrastructure capabilities.

Micro-Planning: The Solution in LAPs and Structure Plans

We require a blueprint for this new direction the city is taking. This isn't just about zoning; it's about quality of life. The Development Plan should be a flexible, living document, reviewed every five to ten years to adapt to market realities while holding firm on public welfare.

The way forward requires a paradigm shift from macro-planning to micro-planning. We need to reintroduce and implement Local Area Plans (LAP). DCPR 20234 includes provisions for LAPs, although they are often implemented through specific, large-scale redevelopment mechanisms rather than a single, all-encompassing "LAP" chapter. The traditional DP sets the broad outlines, but an LAP zooms in. It would study a specific precinct - say, Worli or Vile Parle - analysing its infrastructure, its land use, its history and crucially, its carrying capacity. Only *after* that assessment should FSI limits and

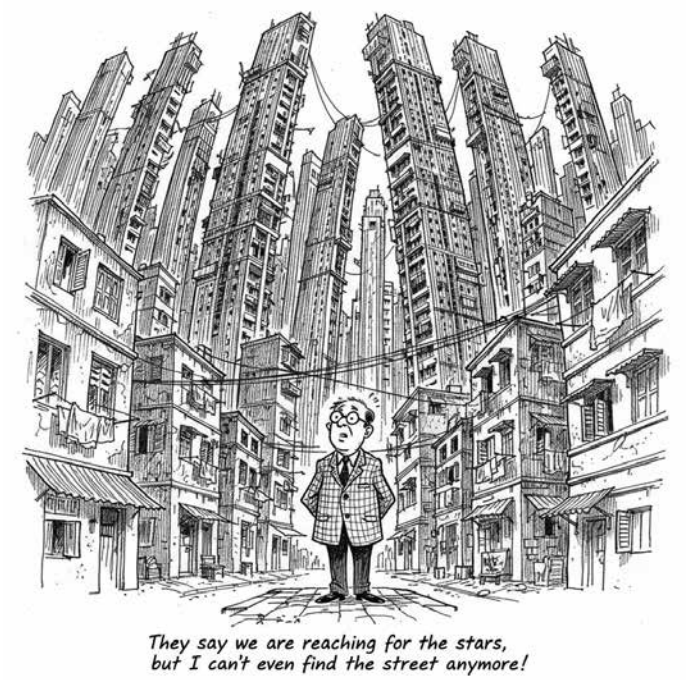


Figure2: The city lost somewhere between the stars and the streets.
Source: Author

height restrictions be determined for that specific area. An LAP would identify where green space is needed, how to widen the road network before new projects are approved and how to preserve a neighbourhood's character. You cannot plan a city of 20 million with a single broad brush. You need micro-planning that understands that Dadar is not Malad and Chembur is not Colaba.

The Urban Design Void

Beyond infrastructure and safety, there is the fundamental and crucial question of liveability and the character of Mumbai. High-rises are not just buildings; they represent the people who live in them and the neighbourhoods they overshadow. In our rush for profit maximisation (note the distinction between profit maximisation and economic growth), we have abandoned the space *between* the buildings. We treat each plot as an island, ignoring the cumulative impact these high-rises have on the neighbourhood's character, wind tunnels, shadow casting and the community's socio-cultural fabric. The current unbridled development is systematically (and systemically) stripping our neighbourhoods of their identity and green spaces.

The "character" of Mumbai – that vibrant, street-level energy – is being sanitised into vertical isolation. There is a dire need to provide more public spaces, open spaces and green cover, not just more square footage of apartments. A liveable city is defined by the quality of its parks, promenades and public squares – not the height of its luxury apartments.

We must implement robust urban design guidelines to ensure new development contributes positively to the cityscape. Good design ensures that a high-rise tower integrates with the street, contributes to an active and safe public realm and is not visually oppressive. It considers sunlight, air circulation, traffic flow, pedestrian flow and the micro-climate. Urban Design is not a luxury; it is a necessity.

Imagine a policy that mandates: "If you go vertical, you must give back horizontal." We need more public spaces, green pockets and breathing room. Not just podium gardens for the elite residents, but genuine, accessible open spaces that stitch the urban fabric back together. New York City has a generous number of public spaces, including plazas and parks. This is the outcome of New York City's Incentive Zoning through the Privately Owned Public Spaces (POPS) program, which grants developers additional FSI in exchange for providing public amenities such as parks, plazas and arcades. This Value Capture approach ensures private investment in enhancing the public realm while allowing greater density and heights in high-value areas. BMC should deliberate over such policies that ensure equitable development.

What, then, must be done?

First, we need a city blueprint that sets explicit carrying-capacity limits for different areas of the city: what density can a given ward realistically support in terms of water, sewage, roads, schools and health facilities?

Second, the DCPR must be made a living, adaptive document. Urban markets evolve quickly; our planning rulebook should keep pace. A more pragmatic approach is to treat development regulations as working documents to be reviewed every 5 to 10 years. LAPs give granular guidance – street-level design standards, public-realm requirements, open-space ratios – and allow stakeholders to see the cumulative impact of individual projects. This iterative process complements longer-term structure plans and keeps the statutory framework responsive to market realities.

Third, design governance must be strengthened. Urban design guidelines and policies should be mandatory, not advisory, for redevelopment projects above specified thresholds. These must address setbacks, tower podium treatment, tower spacing to ensure daylight and ventilation, retention and integration of street life, tree canopy targets and requirements for permeable surfaces to reduce stormwater run-off. Developments that meet high urban design scores and provide public amenities should be incentivised through transferable

development rights (TDR) and faster approvals. This will align developer incentives with public interest.

Fourth, public space must be protected and expanded. Too many redevelopment transactions trade civic open space for private square footage. We must retain and create parks, plazas, grounds and community centres as part of redevelopment.

Planning authorities should set minimum per-capita public open space targets at the ward level and ensure that redevelopment schemes contribute to those targets – either on-site or through public investments funded by development premiums.

Fifth, safety and operations cannot be an afterthought. Fire and life safety audits, mandatory annual inspections, digital tracking of NOCs and a rapid recruitment and training programme for fire services are urgent priorities. Investments in high-reach platforms, ward-level quick response units and community-level emergency preparedness will save lives. Recent efforts to upgrade equipment and training are welcome, but must be matched to the scale of permitted density.

Finally, governance and transparency matter. Redevelopment often involves long, complex public-private negotiations. Standardised agreements, clear timelines, transparent disclosure of developer obligations and community engagement are essential to avoid transactions that prioritise financial gain over human rights.

Heed the Golden Goose

This is not an anti-growth manifesto. The city can and should grow economically, but growth must be channelled into development that preserves the city's ecological balance, social inclusivity and civic character. Otherwise, we behave like the farmer who kills the golden goose by plucking it every day for immediate gain. We will generate headline numbers for a quarter, but lose a city for a century.

We are at an inflection point. There is immense potential in Mumbai's real estate, a powerful engine for our economy. If we continue in this mad rush of unchecked growth to maximise profit, we risk killing the very entity that sustains us. But there is another way. A path of *Development*. A path where regulations are agile, where density is linked to infrastructure capacity and where the skyline is a result of design, not just calculation.

Architects, developers and the local government are the custodians of Mumbai's future. We are not just building structures; we are shaping the future of millions. We should ensure we are creating a city our children will actually want to live in.

Samir Fayaz Shaikh (A18550) is a Mumbai-based practicing architect and urban designer. He is the Founding Principal at AR&UD Studio and HOD – M.Arch. (Urban Design) at VES College of Architecture, Mumbai. Samir has 25 years of international experience on projects of varied scales in multiple sectors.
Email: sfshaikh@gmail.com

Notre-Dame de Paris

Its Survival

By Ar. Vedula VLN Murthy

The site of the Notre-Dame de Paris is under use since thousands of years and it is believed that a Gallo-Roman temple dedicated to Jupiter stood on this site before the arrival of Christianity in France. The Romanesque cathedral of Saint Étienne built on the site in the 4th or 5th century C.E, was found to be unfit; and the construction of the Gothic style Notre-Dame began in 1163 C.E. by laying a cornerstone by Pope Alexander III with the support of the King Louis VII.

Notre-Dame in French means- Our Lady. The cathedral is called by different names like- Notre-Dame de Paris, Our Lady of Paris or simply Notre-Dame. The name Notre-Dame is the deformed name of the Matr Dham in Sanskrit means Mother's House.

The Notre-Dame is a symbol of Gothic architecture of the Middle Ages exhibiting its grand scale and grandeur. The Gothic architectural style first originated in France, when Abbot Suger of S. Denis in 1140 C.E began the chancel of the Abbey. In its evolution, the Gothic style achieved its extreme and aesthetic forms and shapes. The characteristics of Gothic architecture are Monumentality, Scale and Height. The solutions like rib vaults, flying buttresses and pointed arches created a way for the construction of gigantic buildings.

The General Features of the Structure

The plan of the Notre-Dame comprises a nave and two aisles circumambulating through the ambulatories. The transepts at the cross do not project outside beyond the aisles. The Nave interior is a continuous arcade of pointed arches supported on Romanesque round piers. Interior walls reach unprecedented heights having three tiers namely- ground level arcade, gallery and clerestory windows. The sexpartite vault covers the nave at more than 30 metres high.

Notre-Dame was designed to accommodate up to 10,000 people and was built on enormous pillars bridged by arches and windows having no traditional walls. Windows were enriched by coloured stained glasses. This creates an illusion that the roof floats in the air. The enormous high nave seems to accommodate about a 10-story building. The walls were overlaid by tracery. Externally, the structure shows a mass of square front towers along with steep slanting roofs of the central nave, crossing tower and flying buttresses. The roof of the aisles terminates at a lower level below the flying buttresses. Decorated porches, pointed arch windows and rose windows containing tracery and stained glasses, blind arcades, decorated gables, ornamental steeples, mouldings and pinnacles organise the horizontal and vertical sections. The solid front façade comprises of a mass of nine blocks containing pointed arches, rose window and arcaded parapet and square towers on either side. The three deep porches contain archivolts and the wooden portals in them carry decorated jambs, lintels and tympanums. Countless statues, gargoyles and crockets grace the exterior.

The east end apse has large clerestory windows added in 13th century C.E. and the high walls of the nave

Image 1: Notre-Dame de Paris - The western façade in the early 1860s
Source: Édouard Baldus. Wikimedia Commons-Public Domain, commons. wikimedia.org

are supported by single-arch flying buttresses of the Rayonnant Gothic style. The gable end walls of the transepts have great rose windows of the 13th century containing stained glasses.

The Bells

The ten bronze bells with different names ring on the regular activities at the cathedral and in addition to this, they also ring to commemorate national and international events.

Flying Buttresses

Flying buttresses need a special mention, as they are not only supporting elements, but also the dominating visuals in the exterior of the cathedral. The push of the lateral forces exerting from the high slanting roof need appropriate supports outside the structure. In the earlier structures, the weight of the roof pushing outward was settled down to the ground by means of abutments. Flying buttresses are the masonry supports consisting of a pier standing at a distance from the main structure leaving an intervening space, while connecting the main structure by a flying arch, which transfers the lateral forces coming from the high walls and slanting roofs on its own piers. The pier buttresses were topped by stone pinnacles adding weight on them to stand firmly. The system contains two components- a pier and a flyer or a haunch or a bow, which is a segment or a quadrant arch springs over the buttress bridging over to the building wall. In some cases, two tiers of Flying Buttresses were built due to the excessive height of the nave walls. The strongly visible flying buttresses created a forest of soaring masonry beams around the building.

The cathedral was not originally designed to include the flying buttresses, but during construction, stress fractures began to appear on the thinner walls of the nave by the outward pushing action of the slanting roof and the vault. Hence to sustain the outer push of the walls, flying buttresses were found necessary as props and this solution was continued further in future structures.

History of Restoration

Any physical body is prone to suffering, so also the Notre-Dame, which faced several additions and modifications right from its beginning. During the French Revolution from 1789, Notre-Dame was seized and made public property and many of its treasures were either destroyed or plundered. For a time, the Goddess of Liberty replaced the Virgin Mary on several altars. The cathedral was used as a warehouse for the storage of food and other non-religious purposes. It fell into a state of disrepair and was considered for demolition. The admiration of the cathedral in the novel 'Notre-Dame de Paris' written by Victor Hugo (1802-1885),

Image 2: Notre-Dame de Paris - Its Glorified Appearance
Source: Ali Sabbagh- CC0-commons.wikimedia.org

Image 3: Notre-Dame De Paris - The Grand Nave
Source: Peter K Burian-CC BY-SA 4.0, commons.wikimedia.org

Image 4: Notre-Dame - The Flèche
Source: Jebulon - Own work, CC0-commons.wikimedia.org

a French Romantic author, poet, essayist, playwright and politician raised awareness about the cathedral and in 1844, King Louis Philippe ordered for its restoration. Again in 1871, during the period of Communards, the cathedral and other churches suffered much. During the liberation of Paris in 1944, some of the statues and glasses were damaged and were replaced. In 1963, as a mark of the 800th anniversary of the cathedral, the façade was cleansed of the centuries of soot and grime, restoring it to its original off-white colour.

The stone masonry of the exterior had deteriorated due to the increased air pollution. By the late 1980s, several gargoyles and turrets had fallen or become too loose to remain in place, which were restored in a decade-long renovation programme that began in 1991 and replaced much of its exterior. Over the time, its decorations and artworks were stripped down. But it still contains some Gothic and Baroque sculptures and altarpieces and some important relics including the Crown of Thorns and a nail from the True Cross.

The Fire on 15 April 2019

Unfortunately, the cathedral caught fire in 2019 destroying the flèche and the forest of oak roof beams supporting the lead roof that collapsed, bringing down about 750 tonnes of stone and lead. However, the main structure was intact. The Great Organ containing over 8,000 pipes were saved, but it was damaged by water.

An announcement of an international architectural competition received suggestions from many architects that include- a 100-metre flèche made of carbon fibre covered by gold leaf; a roof built of stained glass; a greenhouse; a garden with trees, open to the sky; and a column of light pointed upwards. The first task of restoration was the removal of tonnes of fallen debris and the remains of the scaffolding on the top.

Image 5: Notre-Dame in fire in 2019 that destroyed its roof and the flèche
Source: Wandrille de Préville- CC BY-SA 4.0, commons.wikimedia.org

Image 6: Notre-Dame - The Spire on Fire in 2019 before falling
Source: Habitator terrae, CC BY-SA 4.0-commons.wikimedia.org

As many as a thousand mature trees having a height of about 8 to 14 metres were chosen for making the fleche and the removed trees were replaced by new plantings following the forest and environmental laws.

The excavation carried for scaffolding unearthed several statues and tombs including a 14th century lead sarcophagus and fragments of a choir screen dating from the 13th century and uncovered thousands of metal staples in various parts of the cathedral, some dating back to the early 1160s. It was found that iron was massively used to bind the stones. During the restoration, the stone was sprayed with a latex solution to remove accumulated grime and soot, which was criticised for its artificial brightness.

After the restoration, the cathedral was reopened on 7 December 2024, in a grand ceremony presided over by Laurent Ulrich, the Archbishop of Paris and attended by several world leaders and dignitaries.

Glory of its Existence

The Notre-Dame suffered damage and deterioration and it suffered-nails and bores; sometimes negligence and sometimes glorification and appreciation, love as also hatred and looting; and sometimes, the threat of complete removal. In spite of all these ups and downs, it stood tall in glory. The monument made with inert material is ever active and living in the hearts of the Parisians and especially in the minds of architects across the world.

References

https://en.wikipedia.org/wiki/Notre-Dame_de_Paris
https://www.notredamedeparis.fr/en/
https://www.britannica.com/topic/Notre-Dame-de-Paris
https://en.wikipedia.org/wiki/Notre-Dame_fire

Ar. Vedula VLN Murthy (A 08845) is a B. Arch from College of Fine Arts and Architecture, Hyderabad and has worked as an Architecture faculty and Principal in Govt. Polytechnics in Andhra Pradesh for about 35 years until retirement. He has written History of Architecture books and general books. He is the Chairman of IIA, Kakinada Centre and the Convener of INTACH, East Godavari Chapter.
Email: vvlnmurthy1954@gmail.com

Atlantis

Ocean Wonders on Land

Ar. Mrinalini Sane

The word Atlantis conjures up images of utopia, oceans and marine life and overall, something magical and legendary as narrated by the great Plato. When Dubai embarked on one of their most ambitious projects of that time, in 2001 – the Palm, in the middle of the sea, the tip of the Palm was the centre – the cynosure of those approaching Dubai from the sea. For those coming from the land, it represented the last land point of Dubai. It is here, in this fantastic location, on 114 acres, that Atlantis the Palm, a luxury resort in Dubai is located. As they say in the hotel industry, the three most important aspects for the success of a hotel are – location, location and location! In an adjoining property, the newer Atlantis the Royale is located. It is positioned as the "superior" hotel in the marketing segmentation. However, the location of Atlantis the Palm will always remain most important as the central tip of the Palm Jumeirah. Designed by WATG – Wimberly, Tong and Goo, the construction started in 2006 and was completed in 2008. The construction was handled by Laing O'Rourke.

The approach to the Atlantis is from either an undersea road from the mainland that emerges on the island where Atlantis is located or from an overhead tram. The Palm is not just an engineering marvel. It is the culmination of vision, design and technology and perhaps, before everything, courage!

Atlantis the Palm offers about 1500 rooms and suites. A symmetrical structure that has two wings across the central opening, like an immense arched doorway, the top of the structure is the bridge joining the two halves – which initially was the Bridge Suite (figure 1). These days Nobu, a Michelin-starred restaurant, is located here. Ossianao is their underwater restaurant, with views of marine life.

Figure 1: The imposing structure

The marine theme is omnipresent (figure 2). The reception is dominated with an immense glass sculpture by the well-known glass artist, Dale Chiuli (figure 3). While this 10-metre high, multi-coloured sculpture of more than 3000 glass curving ringlets rises from a gentle water body that cascades down the marble receptacle, the top comes close to the ceiling. The ceiling is designed to look like a large star fish. The large, circular lobby has white fluted columns reminiscent of palm trees placed around the glass sculpture. Across the perimeter of the lobby, are the murals created by the Spanish artist Albino Gonzales. Standing at the Reception, it is impossible to appreciate that these murals are up to 6.5 metres in height. They offer a peek into various themes of planets, constellation, seasons and elements, which are all related to Arabian knowledge and mythology.

Out of the many attractions inside the hotel, two are the Lost World Aquarium and the Ambassador Lagoon. The outside is a 60-acre water theme park that is much loved by families. The theme of marine life in conjunction with an Arabian Nights feel gives the hotel a unique identity. While the Moorish arches and blue colour offer the Arabian palette, the numerous motifs of the sea dot the walls, the

Figure 2: Sea horse motif near the main entrance

Figure 3: Glass sculpture

floors and the ceiling in numerous forms. In addition, the railings, furniture pieces and other finishing items also are reminiscent of the mixed themes (figure 4). The Lost World Aquarium has a magical, cave-like feel. The dark interiors help to highlight the lit organic shaped water tanks that seem to be embedded in the rocky walls. The movement of fish and other flora and fauna offer the eye an ever-changing spectacle. While the subtle lighting allows us to enjoy the colourful views, the ambient lighting guides the movement of the people gently along the apparent rocky cavernous passageways. One can certainly appreciate the balance of lighting to give the desired effect. The feel of being underwater is also enhanced due to the motifs on the display boards that are adjoining the water tanks. The pathways seem to be randomly circuitous but of course, like any good exhibition design, they are gently propelling the viewers to move in a planned way to ensure all displays are seen and enjoyed.

The Ambassador Lagoon is a marvel of sorts. While the Lost World was seen through the darkness, the Ambassador Lagoon is seen in all its 10-meter-

Figure 4: Shell ceiling light

tall glory. Moving from the reception to the wing which houses the underwater restaurant, Ossiano, all along the corridor are more symbols of the twin themes. At the end of the corridor, we stand at a platform overlooking a lower-level café, (figure 5) Poseidon's Court, dotted with tables where people are enjoying light snacks and beverages – while looking at a transparent wall behind which, we see a wondrous view of swirling fish in all shapes and sizes – manta rays and sharks included. The 65,000 fish and the setting can be enjoyed even more intimately – by going right inside the open-to-sky Ambassador Lagoon and viewing the fish closely at the extreme trek. Extreme trek is an adventure that can be enjoyed by the hotel guests with the help of their trained staff. The 10-metre long, about 70 cm thick massive acrylic PMMA panel is designed to withstand the pressure of 11 million litres of water at a depth of 10 metres. The seemingly single panel is in fact, not so. Chemical bonding with bulk polymerisation process allows for an apparently seamless look. Further, to ensure clarity of vision, this panel is engineered to have a refractive index similar to that of water. Hence, for the viewers who are on the Poseidon's Court side, they can enjoy the calming effect of the gently "flying and gliding" fish, especially the manta rays, which "flap" their "wings" in water. Other fish groups – schools, swirl in an ever-changing tableau

Figure 5: Ambassador Lagoon view from the cafe

of colour and movement. The floor of the Lagoon is created to look like ruins – reminiscent of the Lost World of Atlantis perhaps.

Inside the Ambassador Lagoon, submerged broken pillars, some steps leading up a platform, parts of apparently dilapidated walls seem like some structures created by inhabitants long lost to history. Now, in this ruin, nature has come back to reclaim its own – so the fish and other marine life have taken over and we feel as we watch the dappled sunlight gently filtering through from the top, that man and life is indeed momentary – we have become philosophers. That is the power of design and the ingenuity of man and technology. Throughout the hotel, we come across the myriad symbols that keep nudging us to remember the theme of marine life. The wall scones as well as the ceiling roses are shaped like shells or sea anemone. The external wall bulkhead

Figure 6: Star fish outdoor light

has a starfish embellishment (figure 6). The wall-to-wall carpets are certainly colourful, like corals, with shell and fish patterns (figure 7). The columns are shaped like palms or shiny and textured, like glowing fish scales. The chandeliers are themselves shaped to look like strange tentacled marine life; these are suspended from the ceiling that is like the inside of a dome, which is further enhanced by decoration and lights to further the effect of being within the ocean (figure 8). The long corridors are punctuated by tables with flowers and mirrors on the walls. The detailing on these typical features of hotel corridors again reflects the theme. The flower vase is embellished with fish scale-like elements, which is sitting atop the table with an edging of tiny sea shells. The space below the table is the focus with a large shell sculpture. In the mirror, we see the lights, as mentioned, shaped like corals and sea flora. The walls have panels and murals featuring the sea horse while the cornices are shaped to resemble shells (figure 9). From shell-shaped wall fountains, water gently cascades into another receptacle – again a shell of a different shape, size and colour (figure 10).

Figure 7: Anemone on ceiling and fish on carpet

Figure 8: Dome light

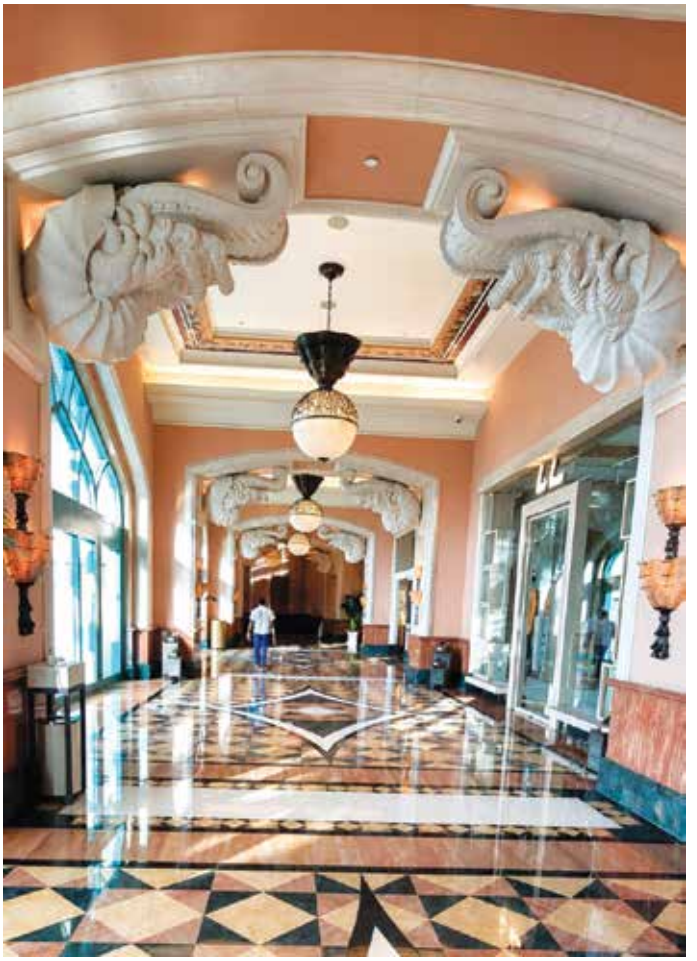


Figure 9: Shell-shaped brackets

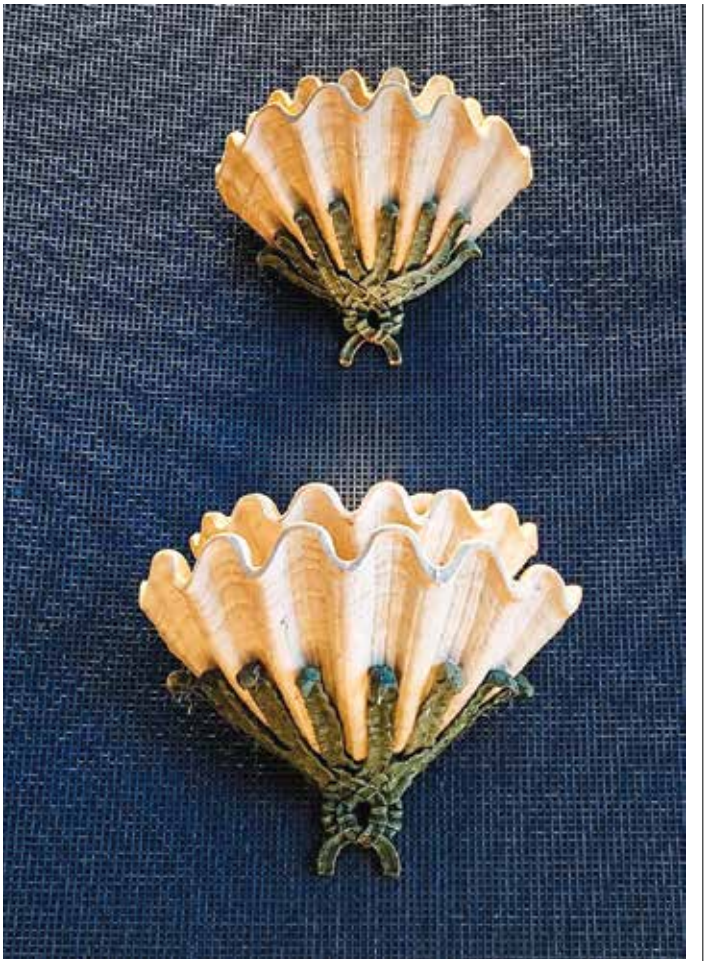


Figure 10: Cascading shell fountains

Apart from the symbols of fish, there are real fish in the hotel – in the Lost World and the Ambassador Lagoon. The hotel also has a separate "hospital" wing to care for the sick marine animals. Trained medical and technical staff are present at the hotel. They ensure that the fish are looked after for all their needs. Also, if needed, surgery and other facilities are present for other serious issues.

During various interactions with the hotel staff and these marine animal trainers, we learnt much about the behind-the-scenes challenges of running a large family hotel which also includes such special features. We appreciate complexities of the design, the technology and the importance of maintenance to ensure smooth operations. We also understand that design doesn't end at the drawing board; it continues throughout the existence of the structure – enhancing it, improving it and where required, adapting to and evolving with the changing needs of the day!

All Images Credit: Author

Ar. Mrinalini Sane (A10915) is a practising architect and interior designer with 35 years of experience. A visiting faculty since 1993, she serves on the JIIA Editorial Board, edits the IIA Maharashtra Souvenir and has supported PCERF for over 20 years. An ISO Auditor, Consultant, Trainer and Rotary GSE representative, she promotes quality in construction practices.
Email: mmsane@gmail.com

ARTICLE

Goa as a Cultural Landscape

Intersections of Architecture, Ecology and Tourism

Ar. Sanjyot Chandrashekhar Kamalwar

Introduction

Goa is often understood primarily through the imagery of beaches, tourism and leisure culture. However, beneath this popular perception lies a deeply layered cultural landscape shaped through centuries of ecological adaptation, colonial influence, architectural evolution and socio-economic transformation. Unlike many regions that developed through isolated cultural trajectories, Goa evolved through continuous interactions between indigenous traditions and Portuguese colonial systems. These interactions are visible not only in architecture but also in settlement patterns, agricultural landscapes, public spaces and everyday social practices.

The concept of a cultural landscape refers to the relationship between people and their environment, where natural systems and human interventions together create spaces of identity, memory and meaning. Goa represents one of the most distinctive examples of this relationship in India. Its coastal ecology, vernacular settlements, churches, village squares, paddy fields and tourism infrastructure collectively form a dynamic and evolving spatial narrative. At the same time, rapid tourism-led urbanisation and globalisation are significantly transforming Goa's physical and cultural environment. Coastal commercialisation, changing land-use patterns and context-insensitive development increasingly threaten ecological stability and architectural continuity. These changes create tensions between heritage conservation, economic growth and environmental sustainability. This article explores Goa as a living cultural landscape through the interconnected themes of Portuguese influence, coastal ecology, tourism, urbanism, changing settlement patterns and architectural identity. Through these lenses, Goa can be understood not merely as a tourist destination but as a complex spatial environment where history, ecology and culture continue to interact.

Portuguese Influence and Spatial Identity

The Portuguese occupation of Goa, which lasted for more than four centuries, had a profound impact on the region's spatial and cultural identity. Unlike several colonial territories where imported architectural forms completely overshadowed local traditions, Goa developed a hybrid cultural environment in which European influences merged with indigenous practices. This process created unique architectural and urban forms that remain central to Goan identity today. Churches, convents and institutional structures introduced Baroque, Manueline and Gothic architectural styles into the region. Buildings such as the Basilica of Bom Jesus and Se Cathedral continue to represent the monumental scale and ornamental richness associated with Portuguese ecclesiastical architecture. However, these structures also adapted to local climatic conditions through high ceilings, thick walls and shaded transitional spaces.

The influence of Portuguese culture extended beyond monumental buildings into domestic architecture and settlement organisation. Traditional Goan houses are among the most recognisable elements of the region's landscape. Brightly coloured facades, ornamental balconies, oyster-shell windows, tiled sloping roofs and extended verandahs create a distinctive visual identity. These architectural elements were not merely decorative; they reflected

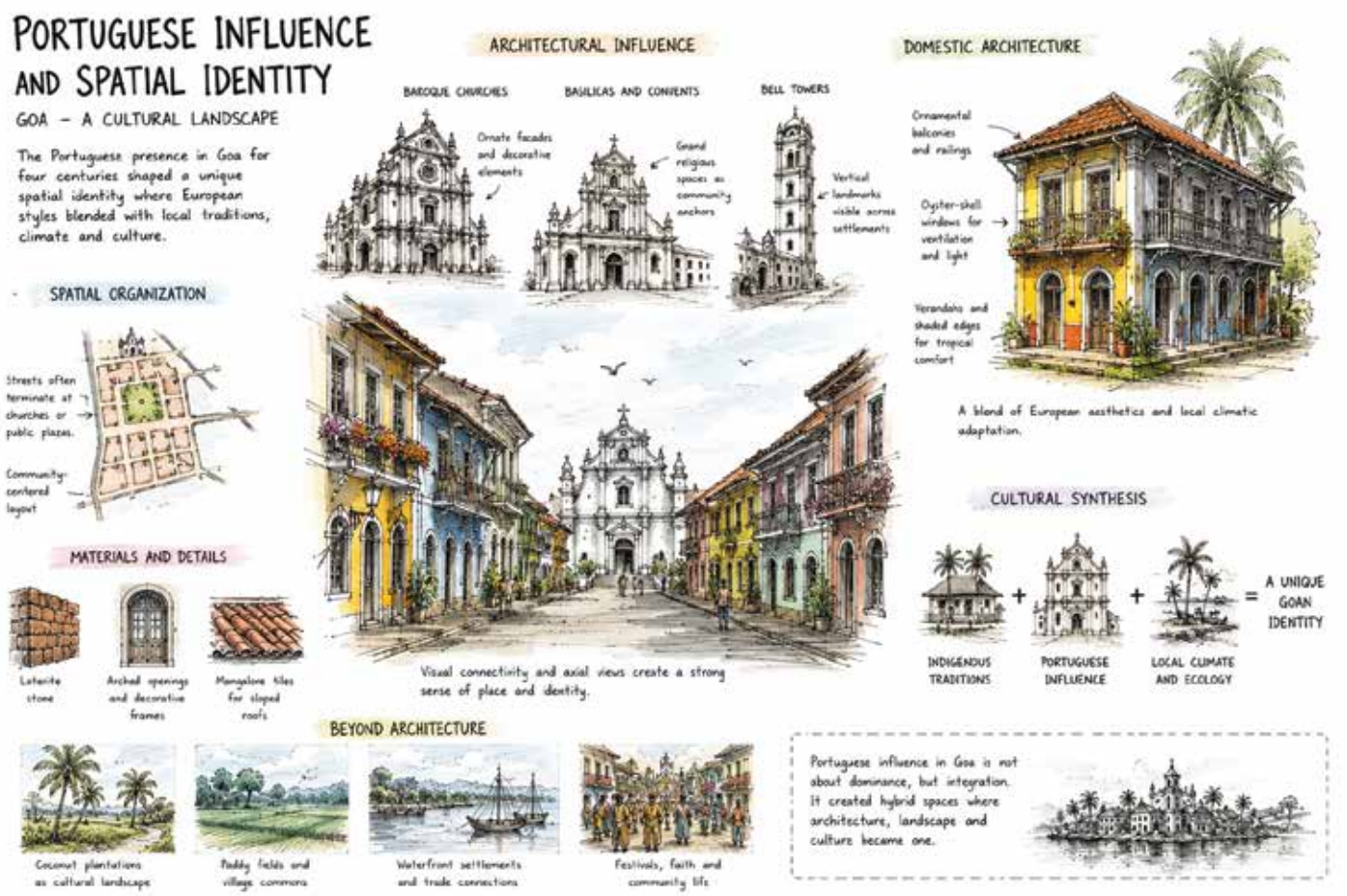


Figure 1: Portuguese influence and spatial identity

social and environmental responses. Verandahs encouraged social interaction and openness toward the street, while sloping roofs and breathable materials responded effectively to the tropical monsoon climate. Houses were often designed around courtyards and semi-open spaces that improved ventilation and created comfortable living conditions. The integration of local materials such as laterite stone and lime plaster further demonstrated climatic adaptation and regional craftsmanship.

Settlement planning also reflected Portuguese influence. Churches and plazas frequently acted as visual and social anchors around which communities developed. Streets often terminated at religious structures, reinforcing a strong sense of orientation and collective identity. Village spaces became centres of social interaction, festivals and cultural activities. Importantly, Portuguese influence in Goa cannot be understood simply as colonial imposition. Over time, local communities adapted and transformed European forms according to regional traditions, climatic needs and social practices. The resulting hybrid landscape became uniquely Goan rather than purely European or indigenous.

Coastal Ecology and Landscape Character

The ecological identity of Goa is inseparable from its coastline and river systems. Beaches, estuaries, mangroves, wetlands, laterite plateaus and dense vegetation collectively shape the environmental character of the region. Historically, these natural systems influenced settlement locations, agricultural practices, occupational patterns and architectural responses.

Traditional settlements in Goa often emerged in environmentally responsive ways. Villages were located according to topography, water availability and agricultural suitability. Paddy fields occupied low-lying fertile areas, while settlements were positioned on elevated lands safe from flooding. Coconut plantations, mangroves and riverfront landscapes became integral components of everyday life.

Coastal vegetation performed both ecological and cultural functions. Coconut palms contributed to the visual identity of Goa while also supporting local livelihoods through agriculture and food production. Mangroves acted as protective ecological buffers by controlling erosion, supporting biodiversity and stabilising coastal systems.

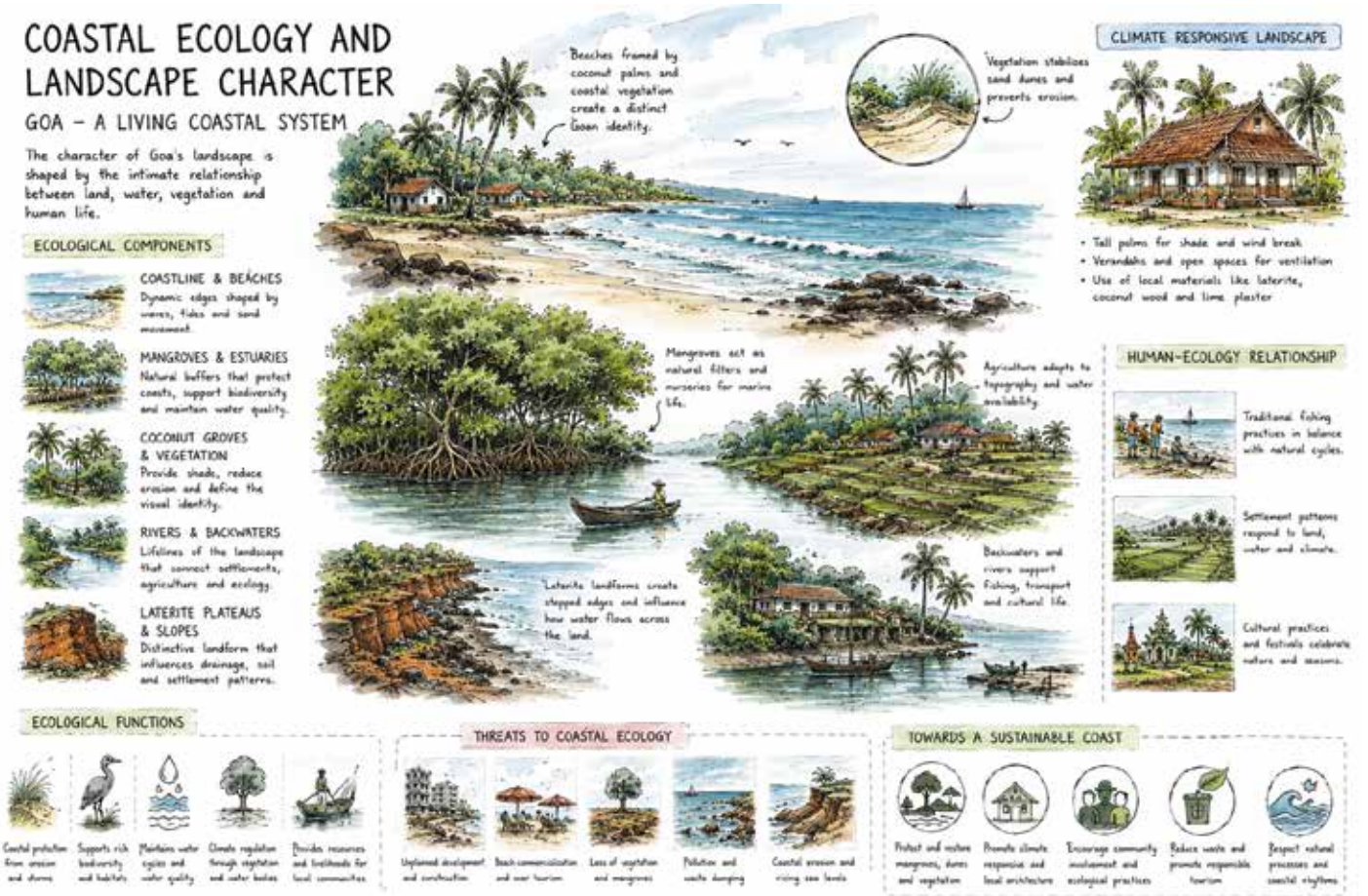


Figure 2: Coastal ecology and landscape character

Traditional architecture reflected a sophisticated understanding of climate and ecology. Houses incorporated sloping roofs to manage heavy rainfall, shaded verandahs for thermal comfort and locally available materials that responded effectively to humidity and heat. The relationship between architecture and landscape demonstrated an awareness of sustainability long before the term became widely discussed.

However, rapid urbanisation and tourism-driven development have increasingly disrupted this ecological balance. Coastal construction, road expansion and commercial infrastructure have altered natural drainage systems and reduced vegetation cover. Beaches experience erosion due to uncontrolled development, while mangroves and wetlands are frequently threatened by land reclamation and real estate expansion.

The commercialisation of beaches has transformed natural landscapes into spaces of consumption. Tourist-oriented activities generate increasing waste, pollution and pressure on fragile ecosystems. Noise, overcrowding and artificial lighting also impact wildlife and alter the sensory character of coastal environments.

Climate change further intensifies these challenges. Rising sea levels, unpredictable rainfall and coastal vulnerability raise important concerns regarding the long-term sustainability of tourism infrastructure and settlement growth. The ecological future of Goa depends significantly on balancing economic development with environmental conservation. Understanding Goa as a cultural landscape requires recognising ecology not as a passive backdrop but as an active participant in shaping regional identity and spatial experience.

Tourism Urbanism and Spatial Transformation

Tourism has emerged as one of the most powerful forces shaping contemporary Goa. While tourism contributes significantly to the regional economy and employment generation, it has also transformed settlement structures, public spaces and cultural practices. Coastal belts that were once characterised by fishing communities, agriculture and village life are increasingly dominated by resorts, cafés, nightlife infrastructure and rental developments. This process, often described as tourism urbanism, reshapes both the physical and social environment.

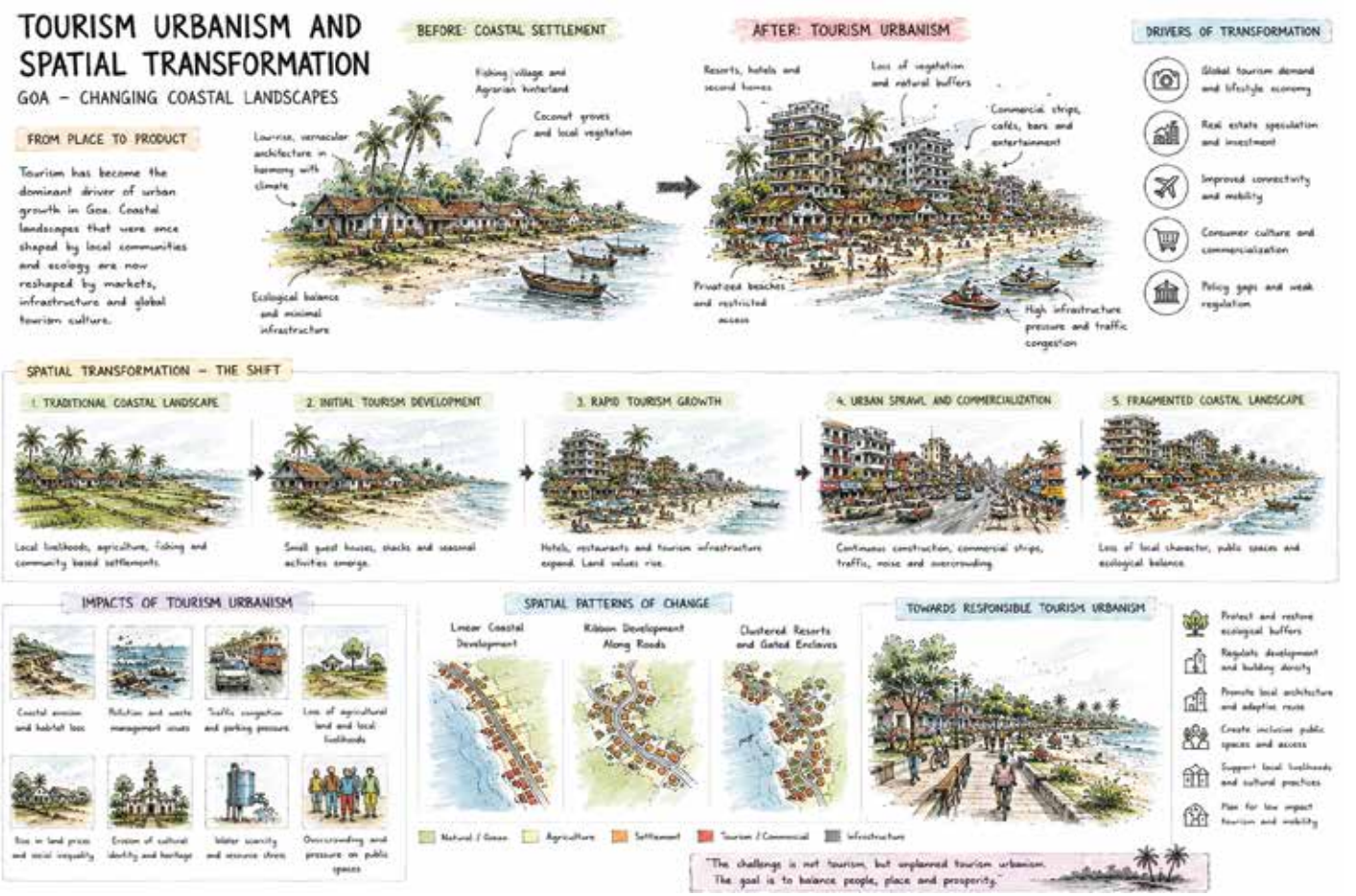


Figure 3: Tourism urbanism and spatial transformation

One of the most visible impacts of tourism is land-use transformation. Agricultural lands and traditional settlements are frequently converted into hospitality infrastructure or speculative real estate developments. The shift from productive landscapes to consumptive landscapes alters local economies and weakens historical relationships between people and land. Tourism also changes the visual character of settlements. In many areas, vernacular houses are replaced by generic contemporary buildings designed primarily for tourist appeal rather than contextual continuity. Glass facades, imported materials and standardised architectural styles increasingly dominate coastal development.

Public spaces experience significant transformation as well. Beaches and village streets that once functioned as community-oriented spaces become commercialised zones catering to visitors. Seasonal tourism cycles influence patterns of movement, soundscapes and social activity. The sensory experience of place changes accordingly. Traditional rhythms associated with fishing, farming and village festivals are increasingly replaced by nightlife economies, commercial events and global tourism culture. Such transformations sometimes weaken regional distinctiveness and create spatial homogenisation. Despite these challenges, tourism also contributes positively in certain contexts. Heritage conservation initiatives often receive support through tourism-related investment. Portuguese-era houses, heritage hotels and restored institutional buildings survive partly because tourism creates economic value around preservation.

Adaptive reuse projects demonstrate how historical structures can remain relevant within contemporary economies. Many old houses are transformed into cultural centres, boutique hotels, cafés or museums while retaining architectural integrity. This creates a paradoxical situation where tourism simultaneously threatens and preserves cultural landscapes. While commercialisation can erode authenticity, tourism-driven conservation can also prevent neglect and abandonment. The challenge therefore lies not in rejecting tourism but in developing more sustainable and culturally sensitive models of development that respect ecological systems and local identity.

Changing Settlement Patterns

Settlement patterns in Goa have undergone substantial transformation due to migration,

Figure 4: Changing settlement patterns

economic shifts, infrastructural growth and tourism-related investment. Traditional village structures centered on churches, agricultural lands and communal spaces are gradually evolving into fragmented and commercially driven urban forms. Historically, Goan settlements demonstrated strong relationships with ecology and social organisation. Villages were compact, walkable and community-oriented. Public spaces such as plazas, courtyards and shaded streets encouraged interaction and collective activities.

Agricultural landscapes formed an essential component of settlement structure. Paddy fields, orchards and plantations were closely integrated with residential areas, creating balanced relationships between habitation and productivity. However, increasing urbanisation has altered these relationships. Road expansion and tourism infrastructure encourage linear coastal growth and dispersed development patterns. Agricultural lands are often converted into residential layouts, commercial zones or hospitality projects. Migration also contributes to changing settlement structures. Influx of tourists, migrant workers and investors create new demands for housing and services. As a result, traditional villages increasingly experience densification, land fragmentation and changing socio-economic dynamics.

The transition from community-oriented settlements to privatised development models influences social interaction and cultural continuity. Public spaces that once supported festivals, markets and collective activities are often overshadowed by gated developments and commercial infrastructure.

Spatial memory and identity are consequently affected. Older generations may continue to associate landscapes with agriculture, community and tradition, while newer developments prioritise consumption and economic efficiency. Nevertheless, some interior villages continue to preserve aspects of traditional settlement morphology. Narrow streets, courtyard houses, shaded edges and mixed-use spaces demonstrate climate-responsive and socially integrated planning principles.

These surviving landscapes provide valuable lessons for contemporary urban design. They illustrate how settlements can balance environmental adaptation, social interaction and spatial identity without excessive dependence on resource-intensive

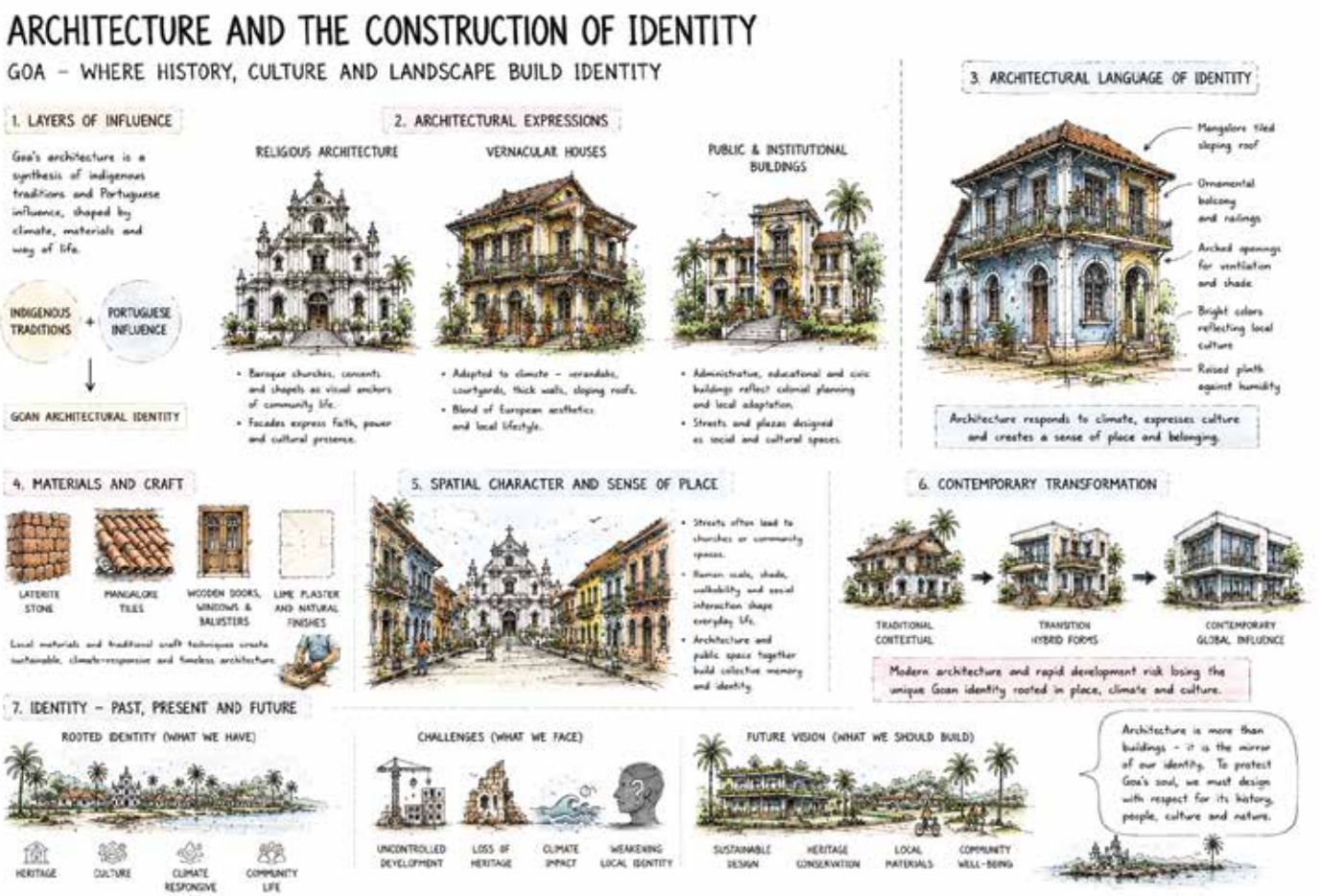


Figure 5: Architecture and the construction of identity

infrastructure. The study of changing settlement patterns in Goa therefore highlights broader questions regarding sustainability, modernization and cultural continuity.

Architecture and the Construction of Identity

Architecture in Goa functions as a powerful expression of regional identity and historical continuity. Religious buildings, vernacular houses, institutional structures and public spaces collectively contribute to a distinct architectural language that differentiates Goa from other Indian coastal regions.

The identity of Goan architecture lies not only in visual ornamentation but also in its relationship with climate, materiality and landscape. Architectural forms evolved through continuous dialogue between environmental conditions and cultural practices. Laterite stone, lime plaster, terracotta roof tiles and timber elements represent locally adapted material systems. Semi-open verandahs, balconies and courtyards respond effectively to tropical climatic conditions while encouraging social interaction.

Religious structures continue to shape spatial identity through their scale, symbolism and visual prominence. Churches often dominate village skylines and function as landmarks within settlement organisation. Domestic architecture similarly reflects social values and cultural hybridity. Portuguese-inspired facades coexist with indigenous planning principles and local craftsmanship. This combination creates a regional architectural vocabulary that is both historically layered and environmentally responsive.

However, contemporary architecture increasingly reflects globalised aesthetics disconnected from local context. Standardised apartment buildings, glass-dominated facades and imported design models often ignore climatic suitability and regional character. Such development contributes to the gradual erosion of architectural identity. Buildings designed primarily for commercial value may prioritise visual spectacle over environmental performance and cultural continuity. Despite these concerns, awareness regarding heritage conservation has grown significantly in recent decades. Conservation movements, adaptive reuse initiatives and heritage tourism projects highlight the importance of preserving Goa's architectural distinctiveness. Several heritage homes have been restored using

traditional materials and techniques, demonstrating that conservation can coexist with contemporary use. Adaptive reuse projects also show how architecture can remain economically viable without sacrificing cultural authenticity. Architecture therefore plays a central role in maintaining collective memory and reinforcing regional identity within rapidly changing landscapes.

Conclusion

Goa represents a complex and evolving cultural landscape where architecture, ecology, tourism and history continuously intersect. Its regional identity has emerged through centuries of cultural exchange, environmental adaptation and socio-economic transformation. Portuguese colonial influence introduced new architectural and spatial forms that blended with indigenous traditions to create a distinctive hybrid identity. Coastal ecosystems, agricultural landscapes and vernacular settlements further shaped the environmental and cultural character of the region.

At the same time, rapid tourism urbanism and contemporary development pressures increasingly challenge this balance. Coastal commercialisation, changing settlement patterns and context-insensitive architecture threaten ecological resilience and cultural continuity. Understanding Goa as a cultural landscape encourages a broader perspective that moves beyond tourism imagery toward recognising the layered relationships between people, place and environment. Such an understanding is especially important within architecture and landscape research, where sustainability and cultural continuity must be approached together rather than separately.

Ultimately, Goa demonstrates that landscapes are not static visual entities but living systems shaped by ecology, memory, culture and everyday human experience. Preserving the richness of this cultural landscape requires sensitive planning, ecological awareness and architectural approaches that respect both heritage and future sustainability.

All Images Credit: Author

Sanjyot C Kamalwar (A24615) is a landscape architect and urban design professional with over five years of experience in creating sustainable and culturally responsive spaces. Her work combines ecological design, heritage and research, with a particular interest in Indian landscapes, sacred geographies and the role of storytelling in shaping meaningful environments.
Email: skamalwar@gmail.com

The Shaping of Amravati City

A Palimpsest of Myth to Modernity

By Ar. Kajal Bhandari and Dr. Sampada Peshwe

1. Introduction:

Amravati city of Maharashtra is a place steeped in mythology and history, with an alluring narrative spanning across centuries. Today it is a key urban hub in the Vidarbha region of Maharashtra and is also known as the 'Cultural Capital of Vidarbha'. It is a unique amalgamation of historical legacy and contemporary urbanism, serving as a centre for education, commerce, agriculture and cultural life. Amravati holds a noteworthy place in the cultural and historical ethos of India. Known as Indrapuri, its beginnings are associated through local tradition and folklore with Lord Indra and Lord Krishna. It has a rich history extending from early Jain traditions mentioned in stone inscriptions dated 1097 CE, connecting the city to Jain Tirthankar Rishabhanatha, till the British colonial development. In pre-independence times it was a freedom-movement hub, hosting leaders like Gandhi and Bose.

Amravati is one of the major districts of Maharashtra, located in its eastern part known as Vidarbha (Figure 1). Amravati is also noted for its natural ecosystems of Melghat Tiger Reserve and Chikhaldara hill station. Well-connected by road, rail and an upcoming airport, the city lies in the midst of the Mumbai-Kolkata highway, nearly 150 kilometres from Nagpur. Its geographical position is between the Saputara ranges and the fertile Purna river basin. Over the period of time the city has evolved through multiple phases, each phase contributing distinct architectural, cultural and socio-political characteristics to its present identity.

2. Origin of Its Name

Amravati's origins are traced back to ancient times, when the region was known as Udumbravati or Umbravati (a Prakrit form) and then Amravati, with the modern spelling becoming dominant. Over centuries, the name gradually evolved into its present form, Amravati, largely due to repeated mispronunciations and reinterpretations by successive multicultural rulers and their subjects.

The name Udumbravati is believed to have originated from the abundance of Audumber (Cluster Fig) trees that once thrived in the region. These trees held cultural and religious significance, lending their name to the settlement. Another widely accepted interpretation among historians connects the name Amravati to the Ambadevi Temple, a prehistoric shrine that still stands as a prominent landmark of the city.

According to history, the Ambadevi Temple is believed to have been established during the era of

Figure 1: Location of Amravati city in Amravati district of Vidarbha region of Maharashtra

Sources: https://www.vecteezy.com/, https://stock.adobe.com/, https://tools.paintmaps.com. Collated and Edited by Authors

Lord Krishna. While mythological accounts highlight its divine origins, scientific dating of the idols housed within the temple places them around 1097 CE, marking the beginning of a historically significant phase in Amravati's development. Together, mythology and archaeology contribute to the layered and enduring legacy of the city.

3. Unfolding Layers from Myth to Urbanism

3.1 Mythological and Proto-Historic Phase (Before 3rd century BCE)

The Amravati district lacks archaeological remains of prehistoric habitation such as dolmens. Therefore, its earliest heritage narrative is derived mainly from mythological and literary sources. The Epics and Puranas describe Vidarbha as a forested landscape south of the Vindhyas, forming part of the legendary Dandakaranya. The sage Agastya, believed to be the first Aryan settler in the Deccan, is closely associated with the region. His settlement and marriage to Lopamudra, Princess of Vidarbha, marked an early phase of cultural integration. Sacred rivers - Payosni (Purna), Varada (Wardha) and Vena (Wainganga) - shaped early ritual geography and later urban settlement patterns.

3.2 Early Urban Formation: Vidarbha Kingdom (c. 3rd century BCE – 3rd century CE)

The emergence of Kundinapura (modern Kaundinyapur in Amravati district) as the capital of Vidarbha represents the first identifiable urban centre in the region. Located along the Wardha river system, it functioned as a political, cultural and trade hub. Archaeological mounds and coin hoards indicate sustained urban activity. During the Mauryan period (184 BCE) Vidarbha was integrated into imperial administration, as evidenced by Ashokan inscriptions and regulations promoting ethical governance.

Under the Satavahanas, the region experienced economic growth, monetisation and cultural pluralism. Though inscriptions are sparse, coin hoards from Amravati and surrounding areas indicate stable urban and agrarian networks. Buddhism, Vedic traditions and Prakrit literature flourished, contributing to the region's composite heritage.

3.3 Classical Urban Consolidation: Vakataka Period (c. 250–550 CE)

The Vakataka dynasty marked a decisive phase in Vidarbha's urban and cultural history. Northern Vidarbha, including Amravati, was governed from Nandivardhana (near Ramtek). Urban planning during this period is evident from Pravarapura (near Mansar) (Figure 2), founded by Pravarasena--II as a new capital. Copper-plate grants from Cammak and Riddhapur reveal organised land administration, temple-based settlements and agrarian expansion. Gupta - Vakataka alliances enhanced architectural patronage, literary production and religious institutions.

Figure 2: Pravarapura, near Mansar
Source: https://imp-art.org/definitions/vakataka-dynasty/

3.4 Early Medieval Transition (c. 6th–10th century CE)

After the Vakatakas, Amravati passed through Kalachuri (King Buddhraj, 620 CE), Chalukya (8th century CE) and Rashtrakuta control. Acalapura (modern Achalpur) (Figure 3) emerged as an important administrative and urban centre. Coin hoards, land grants and battle references (notably the Battle of Payosni) reflect continued political significance and urban continuity rather than decline.

Figure 3: Achalpur fort
Source: https://www.thenewsdirt.com/post/achalpur

3.5 Late Medieval Phase: Yadava Rule (c. 12th – 14th century CE)

Under the Yadavas of Devagiri, Amravati became part of a wider Deccan political network. The period is notable for Hemadpanti temple architecture (Figure 4), durable stone construction and structured town-temple relationships. The region also contributed to the growth of Sanskrit and early Marathi literary traditions, strengthening its intangible heritage. The Yadava defeat in the late 13th century marked a major transformation in the urban and political history of Amravati (Pathak & Pathak, 2006).

Figure 4: Hemadpanti temple at Nandgaon Khandeshwar
Source: https://www.facebook.com/profile.php?id=100064581523887

4. Phases of Urban form

4.1 Phase I - Jain and Yadavas (13th century CE)

The Jain and Yadava periods reflect an important phase of religious coexistence, economic growth and political consolidation in the Deccan. From the early historic period, Jainism had a notable presence, due to its location along inland trade routes connecting northern India with the Deccan plateau. Jain monks and ascetics frequently travelled through this region, promoting ethical principles such as non-violence, renunciation and disciplined living. Although no large Jain monuments survive within the present city limits of Amravati, archaeological remains, sculptural fragments and literary references from nearby settlements indicate sustained Jain influence. Jain merchant communities played a crucial role in shaping the regional economy by supporting agriculture, trade and artisanal activities, particularly in fertile zones near the Purna river basin. The Jain presence contributed to a culture of religious tolerance, coexisting with Buddhist and Brahmanical traditions without major conflict.

With the rise of the Yadava dynasty of Devagiri in the late twelfth century, the Amravati region came under a more centralised and organised political authority (Figure 5). The Yadavas extended their control over Vidarbha, transforming it into an important agrarian and revenue-generating zone within their kingdom. Local administration was carried out through village assemblies and a subordinate Chief operating under royal supervision, ensuring continuity of settlement and land management. During this period, Shaivism and Vaishnavism gained prominence and temple construction increased across the region. Despite the growing dominance of Hindu religious institutions, Jain communities continued to exist and function, indicating a policy of accommodation rather than exclusion. Architecturally, the Yadava period introduced the Hemadpanti style, characterised by dry masonry construction using black basalt stone and simple yet proportionate forms. While major Hemadpanti temples are found mainly outside Amravati city, the architectural principles influenced the shaping of medieval sacred landscapes.

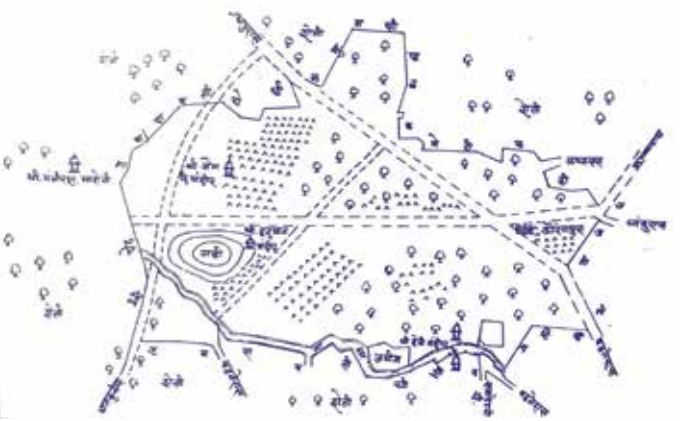


Figure 5: Extent of Juni (Old) Amravati of 1658 showing temples, trees, settlements and roads
Source: Karanjkar, 1978

The socio-economic impact of Yadava rule was significant, marked by the expansion of agriculture through land grants, irrigation tanks and improved rural infrastructure. Trade routes linking Vidarbha with Devagiri and coastal regions strengthened economic integration, while stable governance encouraged the growth of villages that later evolved into medieval towns. The decline of the Yadava dynasty in the early fourteenth century, following invasions by the Delhi Sultanate, brought an end to indigenous Hindu rule in the region. Nevertheless, the foundations laid during the Jain and Yadava periods — religious pluralism, settlement continuity, economic organisation and architectural traditions — continued to influence Amravati's historical trajectory during subsequent medieval and early modern phases (Karanjakar, 1978).

4.2 Phase II - Medieval rule by Marathas (17th century)

The Maratha period represents a formative stage in the urban history of Amravati, during which the town evolved from a predominantly rural settlement into a recognisable proto-urban centre. Prior to Maratha control, Amravati existed as a modest habitation within the Berar region, largely shaped by agrarian activity and religious institutions. The decline of Mughal authority in the early eighteenth century enabled the Marathas, particularly the Bhosale rulers of Nagpur, to integrate the region into a broader political and administrative framework, thereby initiating changes that influenced the town's spatial and functional development.

With the incorporation of Amravati into the Nagpur State under Raghuji Bhosale I, the settlement acquired administrative relevance within the Maratha Confederacy. Although Amravati did not function as a capital city, its location within an agriculturally productive zone allowed it to emerge as a local administrative and market centre. Maratha governance relied on decentralised administration, wherein village and town management was conducted through hereditary officials such as Deshmukhs and Patils. This system encouraged the consolidation of residential clusters around administrative nodes, religious institutions and marketplaces, gradually shaping the town's urban form.

Economic activity played a crucial role in Amravati's urban growth during the Maratha period. The agrarian surplus generated in the surrounding hinterland was channelled through local markets, transforming Amravati into a point of exchange for agricultural produce and artisanal goods. Weekly bazaars and informal trading spaces contributed to the development of commercial streets and public gathering areas. Although infrastructure remained basic, these economic functions fostered population concentration and spatial expansion (Figure 6).

The socio-cultural dimensions of Maratha rule further influenced the urban character of Amravati. Patronage extended to temples, ghats and dharamshalas resulting in the emergence of religious precincts that acted as anchors for settlement growth. The predominance of Marathi language and cultural practices reinforced a shared urban identity. Built forms such as Wada-style residences and community spaces reflected the social hierarchy and lifestyle patterns of the period, even in the absence of planned urban design.

Despite these developments, Maratha-era urbanisation in Amravati remained organic rather than planned. Streets evolved in response to movement, trade and social interaction rather than formal planning principles. This unregulated growth laid the groundwork for the later colonial interventions that introduced structured layouts, civic institutions and modern infrastructure. Thus, from an urban historical perspective, the Maratha period is significant not for monumental architecture or formal planning, but for establishing the functional, economic and cultural foundations that shaped Amravati's transition into a modern city during the British period (Pathak & Pathak, 2006).

Figure 6: Location of the five gates of Juni (Old) Amravati
Source: Vedanti Chandurkar

4.3 Phase III - Nizam and Emerging of Gates (18th century)

The early nineteenth century transformed Udumbravati (present-day Amravati). In 1803, after the defeat of Nagpur's Bhonslas and Shindes, the British ceded Udumbravati to the Nizam of Hyderabad, ending earlier divided authority. Administrative consolidation promised clarity but did not bring stability or prosperity.

Under the Bhonslas, Udumbravati had relative agrarian security; Maratha rule respected landlord structures and limited intrusive interference. The Nizam's government, however, was fiscally strained and relied on intermediaries. Officials, contractors and powerful locals often exploited cultivators. Riots suffered arbitrary exactions and worsening insecurity, so agrarian distress deepened.

A major institutional change was the dismantling of the traditional landlord system. The Nizam introduced the *Makta*, a revenue-farming system where Maktadars bought revenue rights by paying a fixed sum to the state and kept any surplus. That arrangement guaranteed cash for an indebted government but proved ruinous for peasants.

Maktadars, accountable chiefly to profit, neglected agricultural sustainability and peasant welfare; indebtedness and forced sales of land and crop failures followed.

Udumbravati's wealth made matters worse. The province was among the richest in the Nizam's dominions; its makta reportedly yielded around two million rupees annually, earning the epithet, *Bavan Udumbravati*. That bounty provoked fierce competition for revenue rights; bribery, cancelation of grants and violent seizures of maktas became common. Public discourse labelled the Nizam's rule *Monglai*, a term for disorder and lawlessness that entered regional memory and shaped later critiques of Hyderabad administration.

Sikandar Jah's reign (1803–1829) exposed these structural weaknesses. The administration faced rising expenditures, unproductive jagirs and dependence on moneylenders. Even with a larger military presence — British reports cite nearly 26,000 troops in Udumbravati by 1815 — authorities could not suppress disturbances by Bhils, Naiks and Pendharas. In practice Nizam authority was often nominal and villagers remained vulnerable to raiders and local strongmen (Pathak & Pathak, 2006).

Amid pervasive insecurity, Udumbravati (Amravati) became a significant commercial centre. Merchants and moneylenders, alarmed by raids and looting, petitioned the Nizam's government to fortify the town. The appeal gained urgency after Colonel Close, who noted Amravati's prosperity and the Pendhara threat, recommended building walls. On 7th July 1805 the British Resident at Hyderabad, Colonel William Kirkpatrick, reported that he had urged the Nizam to order fortification — showing the decision preceded major attacks.

Construction began in late 1805 or early 1806 but proceeded unevenly because of fiscal strain and administrative inefficiency. The fort was completed around 1821 at a cost of four lakh rupees, forming an enclosure 3,750 yards (two miles) in circumference with walls 20–26 feet high. During the Nizam period 1,150 soldiers guarded the city; no settlements lay outside the ramparts and the surrounding landscape remained largely agricultural and forested.

Notably, the fort had five main gates — Amba Gate, Bhusari Gate (later renamed Jawahar Gate), Nagpuri Gate, Kholapuri Gate and Mahajanpuri Gate (Figures 7 and 8); and four smaller pedestrian openings - Mata Khidki, Khunari Khidki, Patel Khidki and Chhatrapuri Khidki. The main gates were shut each night and reopened each morning with guards

Figure 7: The five gates of Amravati (clockwise from top left corner) - Nagpuri Gate, Jawahar Gate, Amba Gate, Mahajanapura Gate and Kholapuri Gate
Source: Author

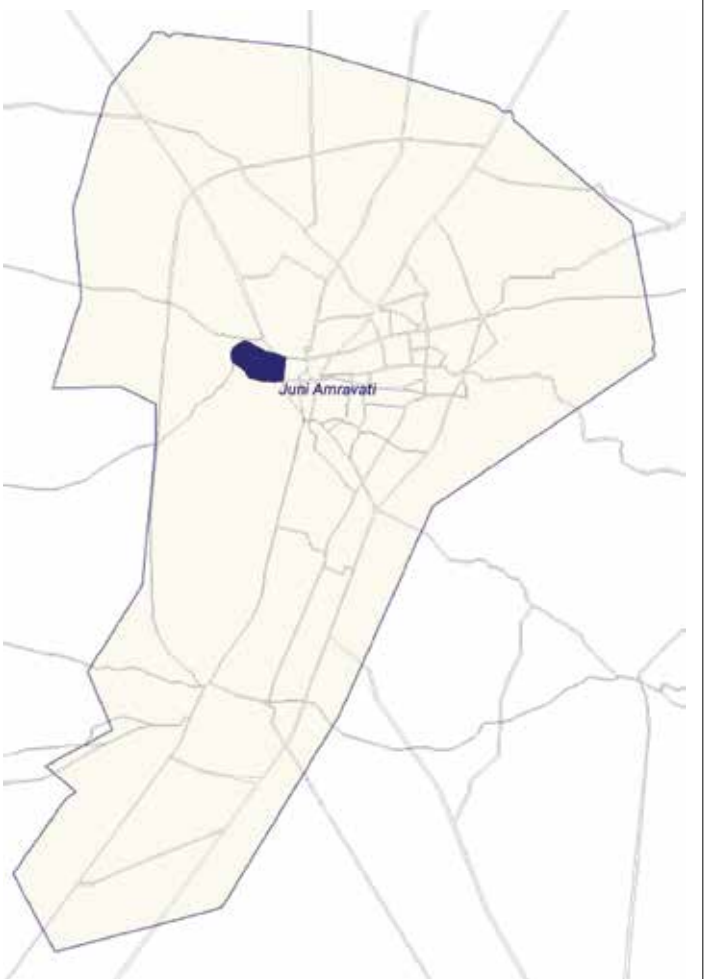


Figure 8: Current extent of Amravati's expansion from the past (Juni Amravati) to the present
Source: Sapna Chopda

posted; the smaller windows allowed controlled foot movement after the gates closed. These gateways regulated trade, movement and security, becoming focal points of urban life and daily routines.

In sum, the Nizam's consolidation of Udumbravati secured revenue for Hyderabad but intensified agrarian distress and administrative corruption. The fortification of Udumbravati represented a costly, delayed effort to protect a prosperous town; it underscored both the city's commercial importance and the state's fragile capacity to provide order and

protection. The memory of Monglai and the fort's gates remained enduring symbols of that troubled era. The sixteen-year project illustrated the state's fiscal weakness and the community's resolve to defend trade (Karanjakar, 1978; thenewsdirt, 2025).

4.4 Phase IV - British and Post-Independence (19th century)

The British Raj or Empire took administration of the Udumbravati or Amravati district as a part of Berar Province, from the mid of the 19th century. The initial half of the century being under the rule of the Nizams, absolute power was wrested to the British Empire in the year 1859. The East India Company took over the administration of this province, dividing it into two districts of the North and the East Berar District. The East Berar District was formed with Amravati being the head quarter. Then onwards, from 1859 to 1871, British ruled with able hands.

The administration was bolstered with numerous administrative buildings being erected to govern the region of Amravati. There is still an area called the Camp in Amravati, the name of which hung ever since the British general author Wellesly set up his camp there. The first railway station came up at Amravati in 1859, followed by the commissioner bungalow in 1860. The main post office was established in 1871 and the small cause court was built in 1886.

During the year 1903, Amravati became a part of the British Central Province, finally being accorded as a district in 1905.The British period also contributed to social and educational advancement. Western education spread through newly established schools and colleges, fostering political awareness and reformist thinking. Amravati actively participated in the Indian freedom movement, with local leaders and citizens engaging in movements such as Non-Cooperation, Civil Disobedience and Quit India. In 1903, Berar was formally placed under British administration, reinforcing colonial control until independence in 1947.

Following India's independence, Amravati became part of the Central Provinces and Berar and subsequently, in 1960, it was incorporated into the state of Maharashtra after linguistic reorganisation. The post-Independence era marked a shift towards democratic governance and planned regional development. Amravati emerged as an important district and divisional headquarters, resulting in the expansion of administrative offices, residential areas and public institutions.

Educational growth became a defining feature of the post-Independence period, particularly with the establishment of Sant Gadge Baba Amravati University in 1983, which strengthened the city's role as an educational centre in Vidarbha. Industrial development remained largely agro-based, supporting the regional economy, while urban growth expanded beyond the colonial core. Despite challenges such as unplanned expansion and infrastructure pressure, the post-Independence phase reshaped Amravati into a modern regional city (Figure 9).

Overall, the British and post-Independence periods collectively laid the foundation for Amravati's administrative importance, urban form and socio-economic identity within Maharashtra (Gandhi, 2023).

5. CONCLUSIONS

Amravati's journey from myth to modernity is a story of layered continuities and transformations. Rooted in sacred landscapes, the city's identity gradually evolved through successive dynasties that balanced spiritual heritage with pragmatic governance. From Kundinapura's emergence as Vidarbha's first urban centre to the Vakataka dynasty's temple-based settlements, Amravati consistently reflected cultural integration and architectural innovation. The Jain and Yadava phases reinforced religious pluralism and agrarian expansion, while Hemadpanti architecture and early Marathi traditions consolidated its role as a resilient cultural hub. The Maratha period further transformed Amravati into a proto-urban centre, where decentralised governance, bazaars and community spaces fostered a distinct urban identity rooted in Marathi traditions, laying the groundwork for later modernisation.

The Nizam era, though marked by fiscal exploitation and agrarian distress, paradoxically strengthened Amravati's urban identity through fortification and the construction of its iconic gates, which became enduring symbols of resilience and daily life. British rule then reshaped the city into a modern administrative and educational hub, introducing infrastructure, civic institutions and political awareness, while the post-Independence period consolidated these foundations through democratic governance, planned expansion and agro-based industry. Despite challenges of unplanned growth, Amravati emerged as a key district within Maharashtra. Today, the city stands as a palimpsest—its myths, monuments and memories layered into a living urban fabric that continues to evolve while carrying forward the echoes of its past.

References

Gandhi, R. D. (2023, July 15). *Urban renewal of walled city*. *International Journal for Research in Applied Science and Engineering Technology (IJRASET)*. Retrieved December 8, 2025, from https://www.ijraset.com/research-paper/urban-renewal-of-walled-city

Gazetteers Department, Government of Maharashtra. (n.d.). *Ancient period – Amravati District Gazetteer*. Retrieved from https://gazetteers.maharashtra.gov.in/cultural.maharashtra.gov.in/english/gazetteer/AMRAVATI/his_ancient%20period.html

Karanjakar, B. D. (1978). *History of Amravati*. Amravati: S. D. Muley.

Pathak, D. A., & Pathak, A. S. (2006, December 25). *Ancient period – Amravati District Gazetteer*. Retrieved December 14, 2025, from https://gazetteers.maharashtra.gov.in/cultural.maharashtra.gov.in/english/gazetteer/AMRAVATI/his_ancient%20period.html

thenewsdirt. (2025, March 9). *History of Amravati, Maharashtra: From prehistory to modern hub*. Retrieved December 8, 2025, from https://www.thenewsdirt.com/post/history-of-amravati-maharashtra-from-prehistory-to-modern-hub

Ar. Kajal Bhandari is an architect and educator, serving as the Principal Architect at Pratibimb Design Consortium. A 2011 graduate of Kavikulguru Institute of Technology and Science, Ramtek, she brings over 12 years of professional expertise in architectural practice. For the past 8 years, she has been mentoring students at ArchiLearn Institute, guiding them in preparation for various design entrance examinations. She is currently pursuing her M.Arch in Architecture Education at SMM College of Architecture, Nagpur.
Email: ar.kajal.bhandari@gmail.com

Dr. Sampada Peshwe (F13271) is an Architect, Academician and Designer. She is currently an Associate Professor and the Dean of Academics at Smt. Manoramabai Mundle College of Architecture, Nagpur. She holds a PhD in Architecture from RTM Nagpur University, Master's in Industrial Design from Rochester Institute of Technology, USA and Bachelors in Architecture from VNIT, Nagpur. She has several national and international publications to her credit, has edited six books and has been a resource person in numerous workshops and teacher training programs.
Email: sampada.ap@gmail.com

PHOTO ESSAY

The Unknown Tale of Garuda Wisnu Kencana

By Ar. Moksha Bhatia

The breath-taking masterpiece of Bali, Indonesia is the Garuda Wisnu Kencana statue. It is one of the world's tallest monumental statues at a height of 120.9m. This statue stands tall in GWK cultural park which is spread over an area of 60 hectares. This cultural park is divided into many zones that have their own distinct beauty and appeal. The inspiration of the design of this parkland is taken from the famous story in Hindu mythology of Bhagawan Kashyapa, his two wives – Dewi Winata and Dewi Kadru and most importantly, Lord Wisnu and Garuda. The myth states that in exchange for the ability to utilise the elixir to free his chained mother, Garuda agreed to be ridden by Lord Wisnu.

Due to local criticism, the structure took 28 years to finish. Many locals thought it was inappropriate to construct a sacred place for tourists and that the massive statue would upset the spiritual harmony of the area. However, in July 2018 when it finally opened, it was a grand success, appreciated both by the locals as well as the tourists. GWK Cultural Park is a must-visit spot because it features spreading parks, an amphitheatre, a street theatre, stores, eateries and the fourth-tallest statue in the world.

Image 1: GWK Statue at 120.9m, view from cultural park
Source: Author

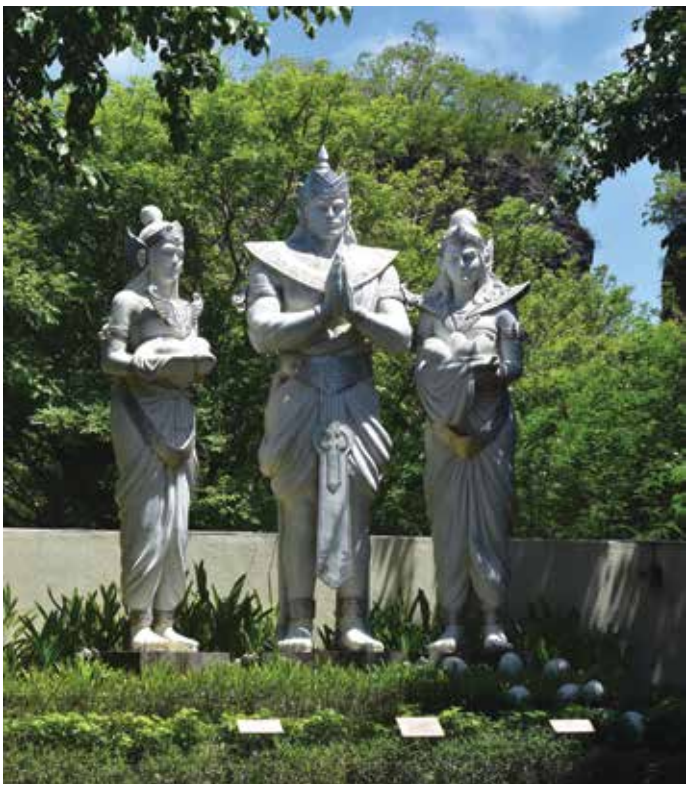


Image 2: Statue of Bhagawan Kashyapa with his two wives Dewi Winata and Dewi Kadru at Plaza Bhagawan
Source: Author

Image 3: The story of Garuda's quest for the Tirta Amertha is portrayed in small reliefs and installations at Tirtha Amertha, a lake and plaza area.
Source: Author

Image 4: One of the intricately carved statues in GWK park
Source: Author

Image 5: Another intricately carved statue in GWK park
Source: Author

Image 6: Statue of Wisnu, standing at a height of 23m.
Source: Author

Image 7: Statue of Garuda, standing at a height of 18m.
Source: Author

Image 8: View of Lotus Pond from state of Garuda.
Source: Author

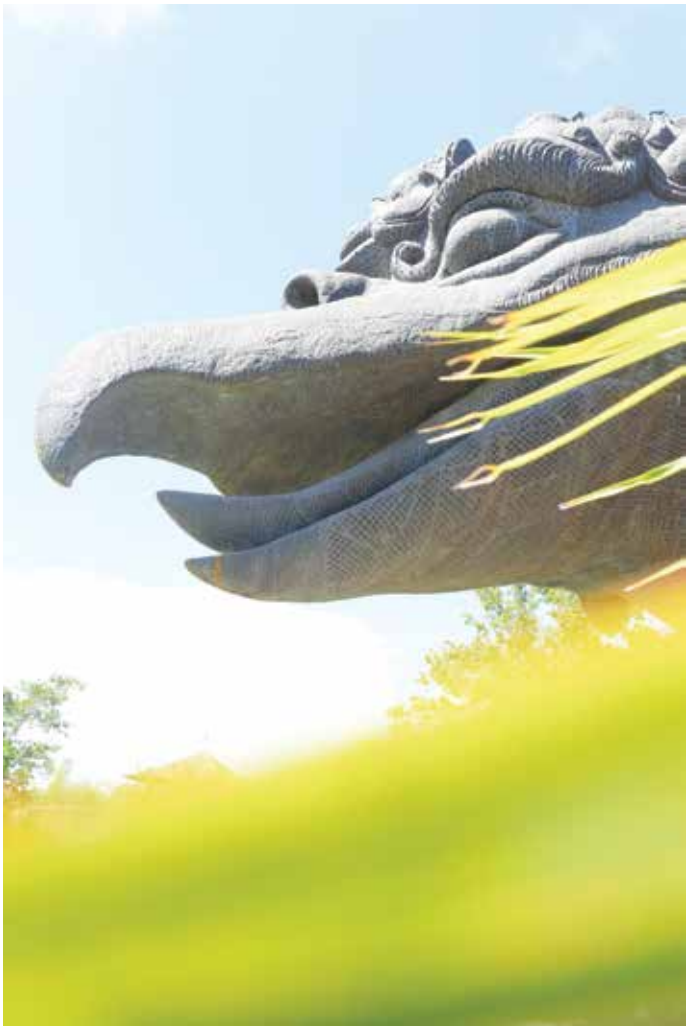


Image 9: A closer look at the Statue of Garuda
Source: Author

Image 10: View of GWK Statue from street theatre.
Source: Author

Ar. Moksha Bhatia (A27831) is a graduate of Punjab Technical University, Mohali and completed her Masters in Urban Design. She is an avid traveller and documents different places for her Urbanism Spinning platform. Being an architect, she likes to photograph - heritage buildings and districts are a favourite. She believes that architecture and travelling co-exist.
Email: moksha.bhatia14@gmail.com

NEWSLETTER MAY

OBITUARY

CONDOLENCES

Ar. Mahavir D Patil

(17 May 1967 – 5 May 2026)

IIA Pimpri Chinchwad Centre expresses condolences for the passing of Ar. Mahavir Dhanpal Patil (A11107), a well-known architect from the Pimpri Chinchwad area near Pune. He established the firm *Mahavir Patil and Associates* in the early nineties as a multi-disciplinary set up extending beyond architectural services to include contracting. His vast experience allowed him to work also as a developer. His ethos was simple: his work must be human centric, sustainable and process-oriented. He was also involved in architectural education. He was the Design Chair at Dr. DY Patil College of Architecture and also was a subject expert examiner for SPPU (formerly known as University of Pune).

IIA MAHARASHTRA CHAPTER

IIA Maharashtra Chapter is proud to announce that the partnership firm *Saakaar Architects* is the recipient of the prestigious ISO 9001:2015 Certificate. This firm is headed by the Chairman, IIA Maharashtra Chapter, Ar. Sandeep Prabhu with his partner Ar. Makarand Parange. The ISO consultancy for the guidance and training work was successfully undertaken by Ar. Mrinalini Sane.

IIA Kalyan Dombivali Centre

Following the successful organization of the Women's Day celebration in the presence of Hon. Mayor Adv. Harshali Vijay Chaudhari of IIA Kalyan Dombivli Municipal Corporation as chief guest and the *Nav Varsh Swagat Yatra* organized by Ganesh Mandir Sanstha, Dombivli, the IIA Kalyan Dombivli Centre continued its commitment to professional development by hosting *Lunch and Learn* Session #6 as part of its continuing education initiative. The session featured an insightful site visit to the educational building of *Keraleeya Samajam's Model English School*, located at Pandurang Wadi, Dombivli East. The project, designed by IIA Kalyan Dombivali Centre Chairperson Ar. Keshav Chikodi, proprietor of *Vastukala*, served as an excellent case study for participants. The program commenced with an engaging audio-visual presentation by Ar. Keshav Chikodi, who elaborated on the design philosophy, planning approach, and challenges encountered during the project. Complementing this, Ar. Atharva from *Vastukala* provided a detailed overview of the interior treatments, offering valuable insights into material selection and spatial detailing. The session was further enriched by the presence of the *Keraleeya Samajam* engineering team, including Project Engineer Narayan Kutty, along with Vishnu Pillai and Vishnu Nair, who expressed their pride in

Lunch and Learn Session no 6

being associated with the project and shared practical execution perspectives. Fire safety aspects of the building were explained by Fire Consultant Nikhil Mane, highlighting critical systems and compliance measures incorporated in the design. Adding an artistic dimension to the visit, Mrs. Mrunal Gokhale showcased her artworks integrated within the building, enhancing the overall spatial experience.

Participants were given a comprehensive tour of the facility, covering all levels from the terrace to the basement. This walkthrough provided firsthand exposure to the building's functional planning, structural features, services integration, and activity spaces.

The session concluded with a delightful lunch, offering an opportunity for informal interaction and knowledge exchange among members. Such visits play a vital role in bridging the gap between theory and practice, enabling architects to experience built environments that are otherwise not easily accessible. The Lunch and Learn series continues to serve as a valuable platform for learning, inspiration and professional engagement.

ADVERTISE WITH JIIA

SR. NO	TYPE	1 ISSUE	3 ISSUES	6 ISSUES	12 ISSUES
1.	BACK COVER	NIL	9,00,000	15,00,000	24,00,000
2.	FRONT AND BACK				
A	INSIDE COVER (1 PAGE)	NIL	6,00,000	10,00,000	18,00,000
B	INSIDE COVER (2 PAGES, FULL SPREAD)	NIL	9,00,000	15,00,000	24,00,000
3.	FULL SPREAD INSIDE (2 PAGES)	2,00,000	6,00,000	10,00,000	18,00,000
4.	FULL PAGE	1,00,000	3,00,000	5,00,000	9,00,000
5.	HALF PAGE	50,000	1,00,000	1,50,000	2,50,000

JIIA ONE YEAR SUBSCRIPTION

GENERAL

MEGASAVER
GENERAL SUBSCRIPTION
Other than IIA members

JOURNAL OF
THE INDIAN INSTITUTE OF ARCHITECTS

Prospect Chambers Annexe, 5th Flr., D.N. Road, Mumbai 400 001
Tel.: +91 22 22046972/22818491/22884805 Fax: +91 22 2283 2516
Email: iiapublication@gmail.com

Please enter my annual subscription at Rs. 1500/-
Payment is enclosed herewith. (Please tick appropriately)

☐ Demand Draft ☐ Cheque ☐ Money Order

Name: Title

Address:

City: Pin:

Signature: Date:

Please tick the appropriate box only

- ☐ Architect registered with the Council of Arch
  Arch. CA No.
- ☐ Planner
- ☐ Engineer
- ☐ Builder
- ☐ Designer
- ☐ Educationist
- ☐ Administrator
- ☐ Business
- ☐ Other than above
  (Please Specify)

STUDENT

MEGASAVER
GENERAL SUBSCRIPTION
Other than IIA members

JOURNAL OF
THE INDIAN INSTITUTE OF ARCHITECTS

Prospect Chambers Annexe, 5th Flr., D.N. Road, Mumbai 400 001
Tel.: +91 22 22046972/22818491/22884805 Fax: +91 22 2283 2516
Email: iiapublication@gmail.com

Please enter my annual subscription at Rs. 1000/-
Payment is enclosed herewith. (Please tick appropriately)

☐ Demand Draft ☐ Cheque ☐ Money Order

Name: Title

Address:

City: Pin:

Signature: Date:

CERTIFICATE

This is to certify that

(Student's Name)

is a bonafide student of

(School, College of Arch)

City

Please enter student Subscription

Signature of Head of the Institution
(Please affix stamp of the Institution

IIA CAD

HOW TO BUY IIA CAD

IIA CAD can be bought only by an active IIA member, with his / her membership paid fully. You can request for the approval to our email id : **orders@iiacad.com**

+91 837 417 4413
orders@iiacad.com

+91 988 448 1290
support@iiacad.com

PERPETUAL LICENSE

Rs.30,000 + GST
for stand alone &

Rs.37,500 + GST
for network license

IIACAD SUPPORTS

NATIVE DWG SUPPORT

IIACAD is a powerful, innovative DWG based CAD Software developed by IIA for it's members

WORK OFFLINE

Fully installed on your computers as you have ever been used to

COST EFFECTIVE

IIACAD is an affordable, cost effective and perpetual CAD solution

EASY SWITCH

IIACAD has similar, friendly User Interface, Commands and Shortcuts

IIACAD Supports PreDCR based E filing of Govt of Kerala, Maharashtra (TP Client) and Uttar Pradesh

91/05
IIA PUBLICATION
POSTAL REGD. NO.MCS/007/2024-2026

RNI NO.9469/57
POSTED AT PATRIKA CHANNEL SORTING OFFICE, MUMBAI-400001
PUBLISHED ON 14TH OF EVERY FOLLOWING MONTH AND
POSTED ON 15TH & 16TH OF EVERY FOLLOWING MONTH

JKAYA

THE JURY

35th JK AYA

Visit **aya.jkcement.com** for more details.

Ar. Rajeev Kathpalia
Ahmedabad, Gujarat
Vastushilpa Sangath LLP

Ar. Rajiv Chadda
Ranchi, Jharkhand
Chadda And Associates

Ar. Prashant Deshmukh
Pune, Maharashtra
Prashant Deshmukh & Associates

Ar. Kamal Periwal
Kolkata, West Bengal
Architect Maheshwari And Associates

Dr. Ar. Atul Kumar Singla
Jalandhar, Punjab
IDEARCH

Ar. Murali Murugan
Chennai, Tamil Nadu
Murali Architects

Ar. Sidhartha Talwar
New Delhi
STA+D

Ar. Evans Juma Oino
Nairobi, Kenya
OJE ASSOCIATES

Ar. Jason Kiun-Fat Chan Sip Siong
Mauritius
Archiplus Consultancy Ltd

Ar. Aiban S Mawkhroh
(Professional Advisor)
Shillong, Meghalaya
Atelier A+

Award instituted by JK Cement LTD., Kanpur, India, From 1990