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# EDITOR'S NOTE

Legendary architect, Padma Vibhushan Balakrishna V. Doshi passed away on 24 January 2023. Ar. B.V. Doshi was a pioneer of Modern and Brutalist architecture in India. He was an architect who celebrated life.

Projects like IIM Bangalore, Vidyadhar Nagar, Jaipur and NIFT Delhi are some of his noteworthy campuses in our country. His contributions were also in the field of academics, urban design and art. The famous Hussain-Doshi Gufa in Ahmedabad is an example of the culmination of architecture and art.

Team JIIA offers our *pranaam* to the Master Architect B.V. Doshi. We are carrying memorial articles and remembrances from Ar. Soumitra Ghosh, Ar. Bijoy Ramachandran and Ar. Christopher Benninger in this issue.

Ar. Manguesh Prabhugaonkar is in dialogue with Ar. Elisabeth Belpaire.

We are carrying the report of the NATCON held in Raipur.

The theme for the January issue is RESILIENCE. Articles and features relevant to the theme are carried in this issue.

We continue with our regular columns and features.

Enjoy reading.

Warm Regards
**Ar. Lalichan Zacharias**
Editor

## EDITORIAL TEAM



**Ar. Lalichan Zacharias**



**Ar. Gita Balakrishnan**



**Ar. Manguesh R. Prabhugaonker**



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**Ar. Brijesh Shaijal**



**Dr. Shilpa Sharma**



**Dr. Pratheek Sudhakaran**



**Ar. Tushar Sogani**

# PRESIDENT'S MESSAGE

Dear Members,
Greetings!

We all feel saddened at the loss of Shri Balakrishna V. Doshi, a doyen in the architectural realm of our country, who was an inspiration to many generations of students and architects both in practice and education.

He served the profession of architecture with extra ordinary commitment and dedication in the various projects he designed, throughout his long career spanning more than six decades, acclaimed by all. It is apt that he has been conferred the Padma Vibhushan by the Government of India immediately after his demise. Besides a number of laurels, we are proud that he was the recipient of the Padma Shri, Padma Bhushan, IIA Baburao Mhatre Gold Medal, RIBA Gold Medal and the most prestigious Pritzker Architecture Prize for his substantial contribution to the field of architecture.

I had the opportunity to visit him at his residence in 2013 to invite him for the IIA National Convention at Chennai. I was awestruck by his simplicity and exemplary values during our conversation and later at Chennai with his profound key note address. We met at the IIAPL at Ahmedabad where he was in the midst of the young players exuding lighter moments and shaking a leg with them. Last year I had the privilege of honouring him on behalf of IIA for being conferred the Pritzker Architecture Prize at a ceremony held at Ahmedabad.

His death is an irreparable loss not only to the fraternity of architects but also to our society. He will be remembered for his contributions to the profession eternally.

The IIA National Convention held at Raipur was organized meticulously by the host chapter under the leadership of Ar. Raj Prajapati and the entire team. The programme, presentations, culturals and hospitality were very well appreciated by all those present.

For the first time the IIAPL Golf Tournament is being hosted by the IIA Cochin Centre under the guidance of the IIA Sports and Cultural Committee. The IIA National Awards Final Jury and Award Ceremony is scheduled for the 3rd & 4th of March, 2023 at Hyderabad hosted by the IIA Telangana Chapter.

Members who have any changes on their contact information may provide the details to the IIA HO for updating the records.

Looking forward to meeting you all at the forthcoming events.

With best wishes,

**Ar. C. R. Raju**
**President, IIA**



**Ar. C.R. Raju**
President, IIA
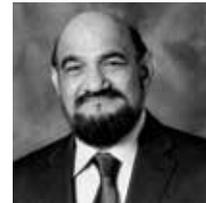


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**Ar. Divya Kush,**
Immediate Past President

# COMMENTS

' During the NATCON , Raipur, President C R Raju acknowledged the JIIA Team for tirelessly working to bring the Journal , month after month, without fail, not expecting any accolades. The quality of the Journal and the efforts by the Team have been appreciated by the entire Fraternity. He added that the JIIA team is the best example for selfless Team work.

**Ar. C. R. Raju**
President, IIA

Dear Lalichan and JIIA Team,

Thank you for the Journal on Religious Structures. Very happy with the layout done by you.

Kind regards
Dean

Nice issue this time… absolutely loved your research papers.

Rich in content, was enlightening to read, very articulately & factfully presented.
Much congratulations.

**Dr. Dakshayini Patil,**
*Bengaluru.*

## We welcome your comments and suggestions.

Please write to us at **jiiaeditorial@gmail.com**

# THEME
# RESILIENCE

*Resilience is defined as the ability to spring back in the face of adversity, trauma, tragedy, threats or significant sources of stress.*

Shelters and buildings are the first to bear testimony of the wrath of most natural disasters- cyclones, earthquakes, typhoons, floods and more. And yet we often hear the word "niche" being loosely used for the domain of architecture and architects. In fact, building resilience through design and architecture needs to be given centre-stage.

A home that is resilient is a great sense of security for those confronting disaster. When destruction strikes and even the roof over your head collapses or your home does not perform to help you deal with the disaster, it is indeed a difficult point to recover from. Hence, architects have a great role to play in designing for resilience.

The Hunnarshala Foundation came about as a response to the 2001 earthquake that affected the region of Kutch in epic proportions. The objective was to help people to rebuild their habitat. The process of facilitating the reconstruction led to the emergence of powerful ideas that proved invaluable tools for sustainable development projects. An organisation that was born in response to a disaster, Hunnarshala is now working on many projects across India with communities as a way of empowering them through the process of construction and management of these projects.



Hunnarshala training locals and rebuilding Bhuj after the 2001 earthquake *(Source and credits: Hunnarshala)*



Tribal Warli Painting showing the importance of Vaccination Drive *(Source and credits: Craft Village Blog)*



Japan Tsunami Emergency Shelters by Shigeru Ban *(Source and credits: SBA)*



A group of migrant workers walks to their native villages amid the nationwide lockdown in New Delhi on March 27, 2020 *(Source and credits: Rajesh Balouria from Pixabay)*



The locked helmets tell their own story *(Source and credits: Pop & Zebra on Unsplash)*

Pritzker Awardee Shigeru Ban's intervention in various disaster-hit regions of the world and the adaptation of his paper tubes as a construction technology to cope with natural calamities is notable. The Paper Partition System (PPS) is quick to erect with cardboard tubes forming the structure and textiles forming the partitions. Three people take five minutes to build one unit! The quick process of erecting these shelters and the design of the partitions allow for dignity even in the face of disaster.

The more recent Covid-19 was a unique event, in at least close to a century, from the perspective that its impact was felt all over the world. India too continues to reel from its aftershocks. The construction industry, along with the farm sector is supposed to have experienced the majority of the 41 lakh job losses seen among the Indian youth. With the loss of around Rs.30000 crores per day in the construction industry alone when the pandemic was at its peak, this event resulted in a substantial reduction of investment in the construction industry and we are now finally seeing an acceleration once again.

It has been said multiple times that Covid-19 was not just a health crisis but it is also a design problem. This infection spread more indoors. But at the same time, people had to isolate themselves indoors for months on end. Many design challenges have been thrown open to architects and design philosophies have undergone a huge paradigm shift. The planning and designing of our homes, healthcare facilities, workplaces, neighbourhoods, and even our cities are being innovated upon to be more resilient and adaptive and we will probably see very different vocabularies in all typologies very soon.

The role of construction workers as the backbone of our lives loomed large when they were missing from sites during the pandemic. This three-year period has hopefully taught us that we need to strengthen our relationships with them and also keep their well-being in sight to ensure our well-being.

The word RESILIENCE has acquired a special place in our lexicon in the last three years, thanks to the pandemic, and made us rethink its whole import.
How can we build resilience inside out?
How do we make our professional community resilient as we design spaces that are resilient for others?
Is Resilience enough? Maybe we need something more.
Nassim Nicholas Taleb, in his book, Anti-fragile says "Some things benefit from shocks; they thrive and grow when exposed to volatility, randomness, disorder, and stressors and love adventure, risk, and uncertainty. Antifragility is beyond resilience or robustness. The resilient resists shocks and stays the same; the antifragile gets better".



**Ar. Gita Balakrishnan**
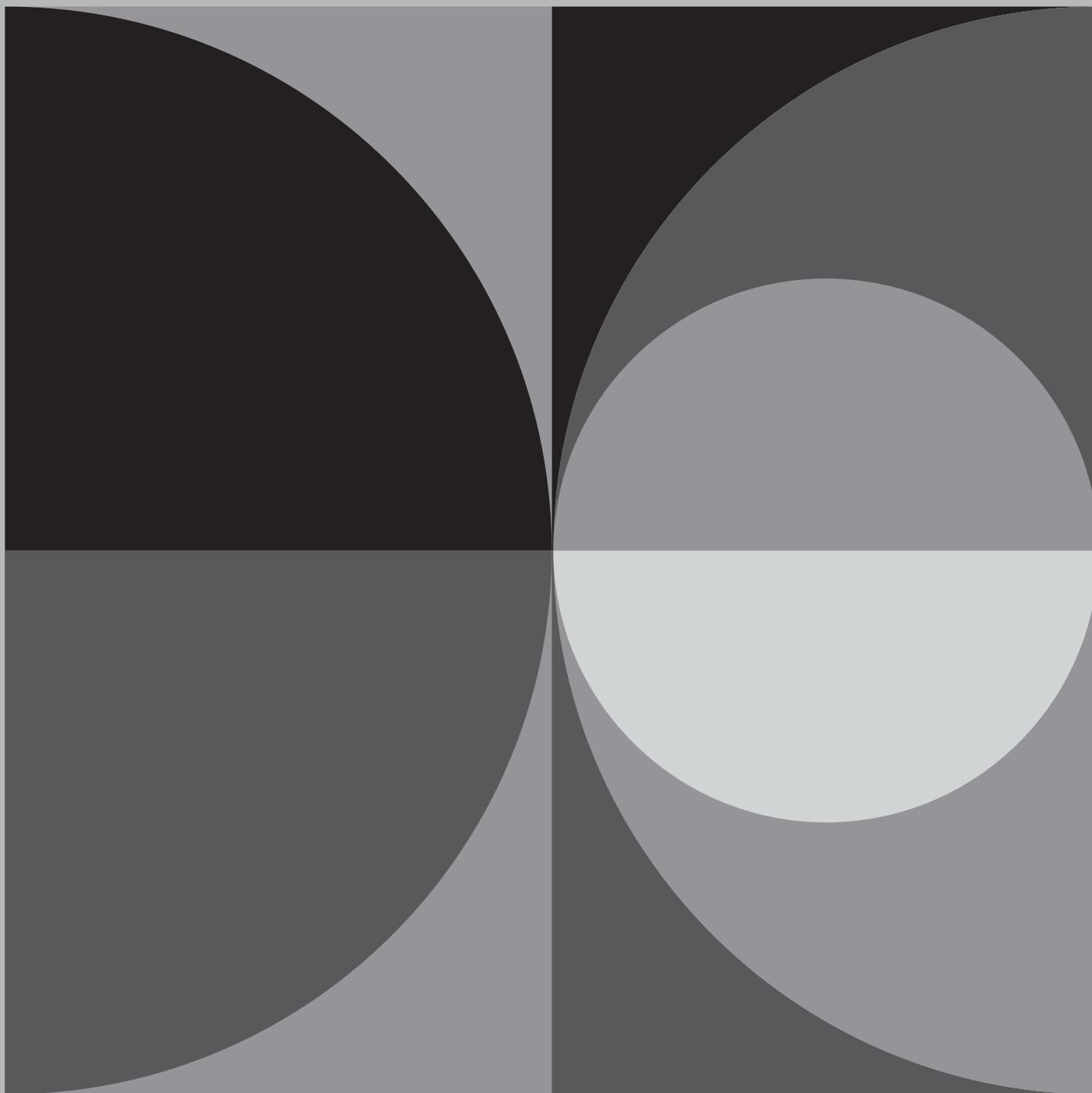
# RESEARCH

**Evaluating Nursery Kids Persona through Environmental Psychology**
*Samyuktha. S., Dr. Sharmila Jagadisan*

●

**FATHOMING FAÇADES**
*Ar. Pooja Chandrashekhar Ugrani, Rachana Yadav G., Prithvi Srinivasan*

# EVALUATING NURSERY KIDS PERSONA THROUGH ENVIRONMENTAL PSYCHOLOGY

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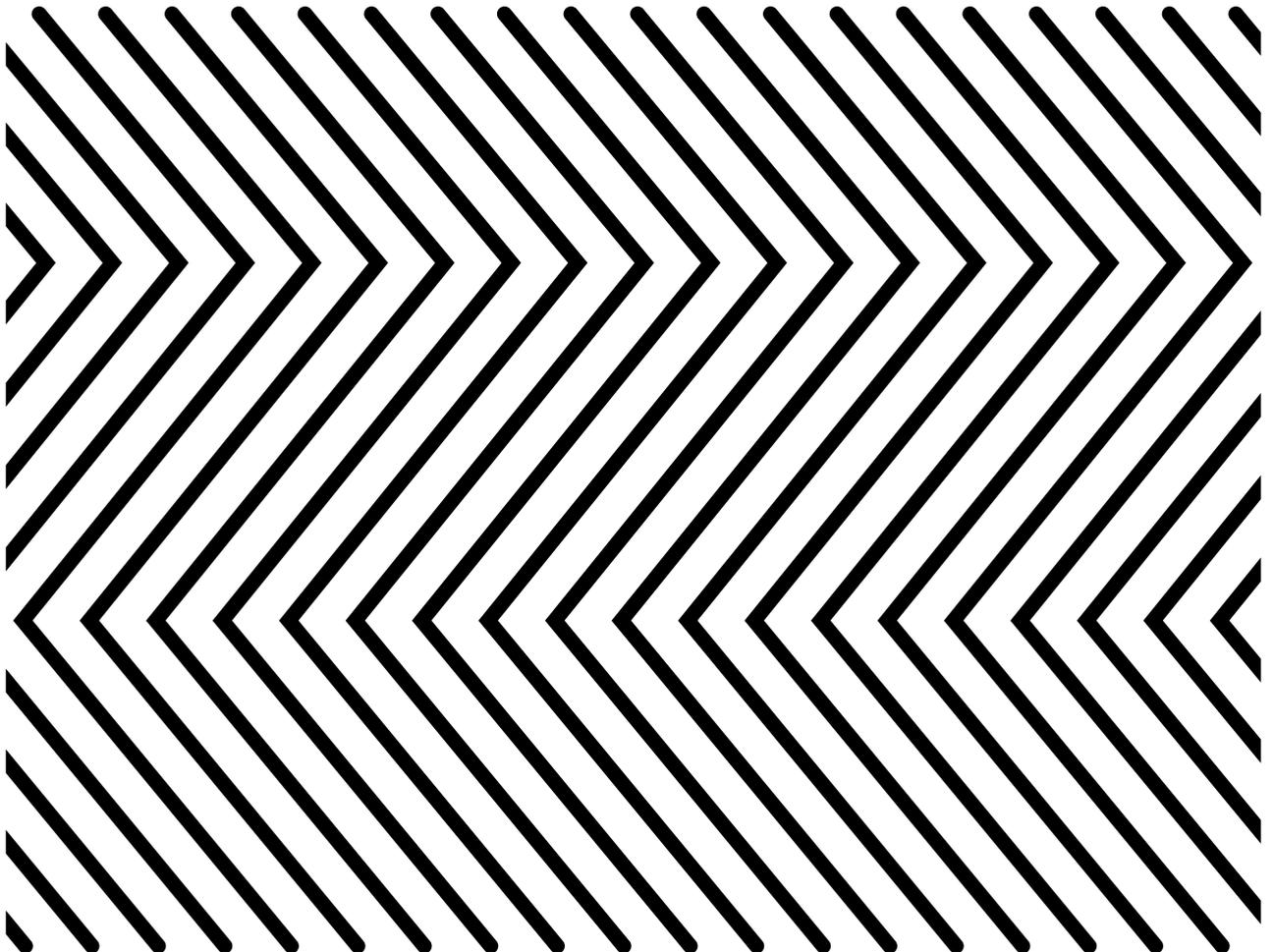
## ABSTRACT

*Preschools are systems in which the environment is considered fundamental for any child development as they involve many interacting factors that are pedagogical, physical, socio-cultural, motivational, and socio-economic. The quality of physical environment and its features play an important role in children's long term personal, cognitive, and emotional development to ensure holistic learning and growth. Children undergo many transitions throughout their lives, but one of the most crucial transitions is the one from a preschool program to kindergarten where from being egocentric the child becomes very altruistic at this stage. This phase requires a child-centric environment where they are encouraged everyone to explore naturally, with great curiosity. Kindergarten built spaces should be designed in a very thoughtful and responsible way as it is the immediate environment that stimulate our senses, observational and social skills. As we consider environment as a third teacher, in essence, kindergarten is a 'space for children's life, growth, and entertainment'. This research identifies the criteria of space-planning and issues as per psychological principles by analyzing three successful case studies as the subject matter in designing the physical learning environment of kindergarten in India. The outcome will be prescriptive design strategy to understand the effective kindergarten design requirements in terms of child psychology, safety, functionality, and efficiency.*

**Keywords:** *child psychology, egocentric, transition, positive learning environment*

## Introduction

*The highest education is that which does not merely give us information but makes our life in harmony with all existence.* Rabindranath Tagore.

The environment in which a child develops can have a significant impact on their mental development and personality. As a stepping-stone, kindergarten plays a significant role influencing the child and developing its social skills and motor skills. Children's actions, thoughts, beliefs and learning are affected by the environment around them. A well-designed, stimulating environment can enhance children's cognitive, emotional development and learning. The Reggio Emilia Method to early childhood education refers to the environment as the child's 'third teacher', parents and teachers being the first two. This acknowledging the enormous influence of environment. Preschoolers are active learners: they explore, solve problems, discover and experiment with a range of materials surrounding them. It is the key to create learning environments that are responsive to children's differing abilities, interests, needs and developmental levels. Children's physical movement, cognitive scanning and social transaction in a space are directly influenced by the spatial properties of the environment (Said, 2010). Therefore, learning environments should be designed carefully as children spend most of their day in school. The school atmosphere plays a crucial role and impacts in shaping their personalities. Environmental design has a direct impact on children's mental health and development. Therefore, to create a happy growth atmosphere which is in line with the physical and mental development characteristics of children, architects and educators should start from the context of environmental psychology (Cao, et al., 2021).

## Motivation and significance of the research

Early childhood is a time of tremendous brain development which occurs in spurts during the critical period between the of ages 3 – 5, where nearly 85% of the brain development is complete. The development process that takes place in this period greatly affects upto 60 - 70% of learning ability of a child in future.

This research intends to look at the factors which create a positive and child-oriented learning space for children that encourages socialization, concept of cooperation, holistic development, enthusiasm for lifelong learning, teamwork, resilience, concentration, patience, confidence and self-esteem.

## Research problem

The environment has a significant influence on our behavior, architecture and human psychology which are closely intertwined. Understanding user psychology is the key to a successful design. Adults are capable of articulating their ideas in an enhanced way. When creating places for adults, it is possible to examine user psychology because adults can communicate their thoughts in more effective ways. But what about children who can't express but are affected by it? Academics concur that children's social, emotional, psychological, and physical development is greatly influenced by their immediate surroundings. The lack of awareness and unfamiliarity of architects with children's psychological traits makes it imperative to have a thorough understanding of how they perceive space. It is crucial to learn about architecture from the perspective of child psychology.

## Research Objective

- To understand the theoretical underpinnings of children's psychology and its relationship to the built environment through the lens of architecture.
- To compare and analyze different literature study on environmental psychology and creating a list of parameters.
- To assess the built spaces of kindergartens with the help of selected case studies through identified parameters.
- To propose prescriptive design strategies to understand the effective kindergarten requirements in terms of child psychology, safety, functionality and efficiency.

## Research Methodology

*Data collection methods*

Before framing a methodology authors searched published papers from internet using keywords, and phrases such as 'child psychology' 'egocentric' and 'positive learning environment', to analyse the common precipitating factors responsible to create stimulating learning environments for children. Fig. 1 shows the research framework.

## Framework

*1) Children and their environment:*

Understanding user wants and expectations and producing a successful design depends on the study and analysis of user groups and their requirements. According to law, children are referred to as 'minors'.
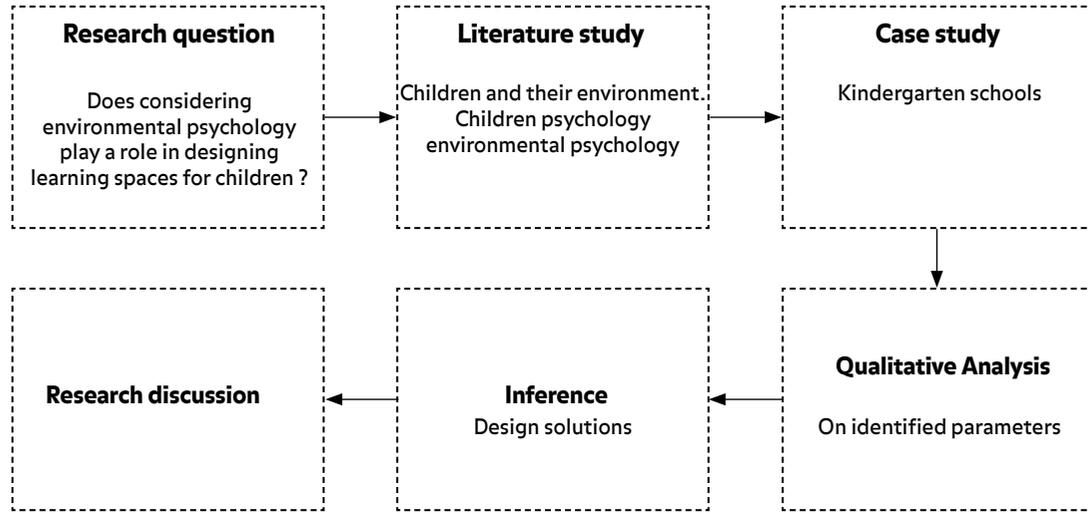
**Fig. 1.** Research framework
*(Source : Authors)*
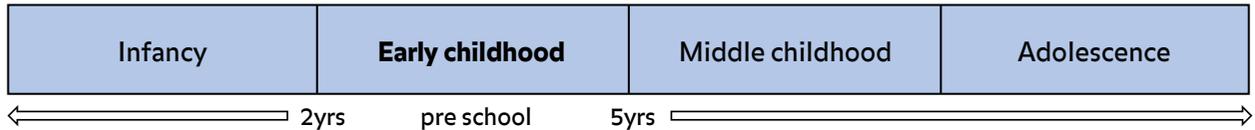


**Fig. 2.** Early childhood
*(Source : Authors)*

Children (aged 15 or under) make up 26% of the world's population (Dobbins, 2018). Children's perspectives and their needs differ from adults because of physical and biological differences. Hence, observing and listening to children should be recognized and is important for understanding their priorities within an environment (Dudek, 2005).

*2) Early childhood*
According to child development experts, children between the ages of 2 – 5 are considered to fall under early childhood years (refer Fig.2). It's also known as the preschool stage wherein a child's brain is highly sensitive to the environment around them. The unconscious absorbent mind (from 0 to 2 years old) and the conscious absorbent mind (from 2 to 5 years) are the two phases of an early childhood. According to this hypothesis, a child experiences its surroundings through senses and taking in everything from their environment similar to the analogy of how the sponge absorbs water. It is the period of transition from dependent infants to highly active young individuals in community (Mah & Ford-Jones, 2012). Early childhood is the period of incredible fantasy, wonder, and play in the perspective of child development (McDevitt & Ormrod, 2002).

*3) Children's perspective of space*
The environment's quality has an impact on both the physical and psychological well-being of its occupants (Shaghaghi & Khodaei, 2016). The lack of awareness and unfamiliarity of architects with children's psychological traits makes it imperative to have a thorough understanding of how they perceive space (refer Fig.3). Architecture must be studied from the perspective of child psychology.

Children and adults perceive and use spaces in very different ways. Children place a higher value on utilitarian qualities than aesthetic ones. Adults are limited in their ability to explore an area further by their understanding of how to use it. Children define their own guidelines about how to interact with the environment. Additionally, they want relaxing areas, and children typically favour green environments for this (UNICEF, 2021). Children gain from being in an environment that pushes them to develop independent behavior. Although indoor spaces offer opportunity for play, children prefer the outdoors because they have more flexibility and can engage in loud activities without being hindered (Dudek, 2005). Children have a significant part in perception of the surroundings since they interact with their environment through their senses (Ghasemabad & Sharifabad, 2017).

*4) Environmental Psychology*
Environmental psychology is defined as the 'interaction between built environment and humans'. The interaction here tells us the effect-built environment has on the users which is evident via human behavior (Anbari & Soltanzadeh, 2015). Environmental psychology contends that our physical surroundings have a considerable impact on our social interactions and behaviors, influencing how we feel, think, and behave (Proshansky, 1978).

**Fig. 3.** Children learning spaces
*(Source: Authors)*

*5) Natural environment*
Human behaviour and emotional systems have evolved in response to natural environment. Fundamentally, children's comfort, behaviour and performance in terms of natural environment is affected by the factors listed below:

*6) Light*
Natural lighting helps in achieving both physical and mental comfort by regulating the circadian rhythm of the body. The positioning of openings also attracts children depending on the views offered by them. The amount of day light received depends on the orientation of the building and overall glazing design factor. The sunlight received by the eastern and the western façade is only for half of the day when the suns position is low. While the southern facade receives both direct and diffused light resulting in shadows and vivid view. The most preferred is the north façade, despite receiving low illuminance doesn't have the problem of glare. More number of windows help to distribute natural light entering the classrooms. Also, the classroom should also have at least a minimum of 6.7 square meters of opening for natural light (Adler, 1999). In nursery classroom the minimum height of the sill should be 800mm. Also, if the seating arrangement includes squatting, then the sill height should at least be 600mm. For the south, east and west façades, a glazing ratio of 40% and for the north façade, 55% is recommended.

*7) Sound*
Learning and working efficiency can be achieved when the auditory perception is clear and the environment is free from noise. Excessive noise interferes with learning by affecting memory (Hygge, 2003). Schools should be located regions away from industries and transport hubs as they produce more decibels of sound. The layout within the schools should also strategically allocate spaces like music rooms and mechanical rooms. Some measures to mitigate noise is by providing buffer zones, heavy thick walls, floating floors and absorbing flooring materials, etc. (Evans, 1990).

*8) Temperature*
Temperature, humidity, air movement and human activity conditions within a certain range all determine the thermal comfort within a building. The north and south walls should be longer than the east and west ones to take maximum advantage of the solar heat gain. If the surface area of the building exposed to outside and window size increases the solar heat gain also increases.

*9) Air quality*
Children breathing and metabolic rates are high therefore quality of air and ventilation are important for children learning. Schools should be located far from polluted areas and placed along the windward side of local prevailing winds. The rooms should encourage proper cross ventilation. Additionally, presence of courtyards also increases ventilation (YuLau, et al., 2014).

*10) Level of stimulation*
The environment created for children should therefore encourage and assist the development of their sensory senses.

## 11) Colour

With the energy created by light, colours impact physical functioning, thoughts, and emotions. Studies have clearly demonstrated the benefits of colours in terms of brain growth, creativity, productivity, and learning. Colour has a wide range of impacts on humans, including eliciting excitement, instilling calm, inspiring creativity, inducing worry or tension, and instilling serenity (Renk, 2011). Colour sensitivity is higher in children. Different colours stimulate different emotions and they have an impact on developing a child's cognitive and thinking ability (Boyatzis & Varghese, 1993).

## 12) Material and Texture

Material preferences of children are those obtained naturally like wood bamboo, etc., as they are able to establish a close relation to nature resulting in comfort and calmness. Children learn through senses. Depth, irregularity and fibrousness are the important properties of texture. Children prefer curvy patterns than those with pointed features and sharp angles (Palumbo & Bertamini, 2016). It truly benefits a child's development to feel the varying textures of various materials (refer Fig.8). It is advised to create an environment with textures that are accessible by touch (Migliani, 2020).

## 13) Nature

Children's interaction with nature is very crucial for psychological well-being as nature have a stimulating effect on them and evokes positive emotions. They also allow them to learn about their environment like growth of trees, change in seasons and so on. Natural elements like flowering plants, trees, water bodies are preferred by children as they are dynamic and also provide opportunities for play (Acar, 2012).

## 14) Physical space

Classroom design may have a positive or negative influence on students' motivation and well-being. To establish a learning environment in the classroom, you must first consider the physical area. Make use of all available space in the room to create an environment that promotes participation and learning and spaces with differing stimuli tend to keep them awake (ibid.).

## 15) Classroom density

Classroom density can be defined as the number of children present for one teacher. The total number of pupils in each classroom is referred to as 'class size'. An ideal nursery classroom can have about 20 people in it not more than that or else it will difficult for the teacher to manage the classroom. In few guidelines it is stated that one student should get a minimum of 3.2 sq.m area to themselves. In addition to that, a classroom with 20 people should be of minimum 64 sq.m in area. Few studies also suggest that the classroom density is directly proportional to the learning outcome of the children.

## 16) Classroom shape

Within the framework of the educational environment, the classroom may be viewed as a behavior setting (Barker, 1968). According to recent research by the University of Salford, classroom design has a 25% positive or negative influence on learning. Along with striking a balance between teaching and learning, it's also critical to make good use of the available space in your classroom. Traditionally, this entity has been created in the shape of a square or rectangle. Open structure room layout with minimum walls are seen to help reduce nervousness.

Interest, investigation and social communication increases in open plan. However open plan causes more traffic and accidents due to rough play. It also leads to distraction, aggression and elevated behavior (Arabyat, 2020). Also, the length : breadth ratio of a classroom should be 1 : 1.5 to make the environment comfortable and welcoming to the children. The finished ceiling height inside the classroom, when differentiated according to a child's scale, increases cooperation. It is not only square or rectangle shaped spaces, but also L-shaped or hexagonal can be used if it satisfies these parameters.

## 17) Furniture Arrangement

The instructor is in charge of deciding how to use the available space in the classroom. Whether consciously or unconsciously, the teacher's furniture arrangement communicates his or her beliefs on how to effectively educate, maintain order, and help pupils learn. Effective instructors provide a secure learning atmosphere in the classroom (Oliver, 2007). For smaller classrooms, U-shaped furniture arrangement is best suited as it is easy for observation by the teacher and it also promotes one on one conversations. A U-shaped desk arrangement encourages eye contact and unrestricted transit for instructors, and it can aid in improving classroom conduct (Michaelson, 2020).

## 18) Flexibility

Learning sometimes requires different group activities and children should be provided with an environment which provides opportunities for such grouping (Dudek, 2005). Therefore, a flexible composition of interiors helps in creating an active environment.

## 19) Scale

Children get intimidated by surroundings that aren't to their scale as they lack the sense of control and ownership in that environment. Children's self confidence and self-esteem can be increased when spaces are designed to their scale. William Caudill said that this is the most important aspect of school design. There should be a combination of large small and private spaces.

## Inference

From the case study analysis (seen in Table 1), it was found that :

a) In all these case studies, a stimulating factor 'colour' was predominantly found, but considering only the aspects of colours in children's spaces is not sufficient as there are many other equivalent parameters to be taken into account.

b) The parameter of texture was lacking in the case

Table 1: **Analysis of Case Studies**
*(Source: Authors)*

| Analysis | Parameters | Case Study 1 | Case Study -2 | Case Study -3 |
| --- | --- | --- | --- | --- |
| | | **School A**<br>**Fuji Kindergarten** | **School B**<br>**Yellow Train School** | **School C**<br>**Nandanam Kindergarten** |
| **Natural Environment Analysis** | *Light* | The courtyard and sliding exterior glazed walls are the sources of daylight. In addition, each room has skylights on the roof. | The open to sky courtyards, skylights and brick jali are the sources of natural light. | The openings on walls, skylights and central courtyard are the sources of natural light. |
| | *Sound* | The design was developed with a open planning in mind where noise is experienced from other spaces | The school is located away from the busy highway surrounded by farms and agriculture land. | The school is located in the cultural zone close to Matri Mandir |
| | *Temperature* | The sliding door can be opened and closed as per seasonal variation. Moderation of rise in temperature in summer is done by air space under the wooden deck and insulated ceiling. | The jalli walls bring in cool air needed for hot and humid climate of Coimbatore thus maintaining the temperature of the interiors. | The open courtyard helps in passive cooling in summer and passive heating in winter. |
| | *Air Quality* | The rooms have cross ventilation. They have a central courtyard with trees letting in fresh air. | The courtyard and jali walls offer passive ventilation. | The central courtyard, large window openings and landscape let in fresh air. |
| **Level of Stimulation Analysis** | *Colour* | In this case study they havent used colour in vertical and horizontal planes | Herre they have used colours on playing equipments, flooring, corridors, classrooms, courtyards and active areas | They have used colours on exposed columns around the courtyard |
| | *Materials and Texture* | Natural materials and soft textures are used creating warm atmosphere. Children are exposed to textures of nature i.e sand and water | CSEB blocks used for construction emphasizing the importance of connect to nature. Colourful mosaic tiles are used in stairs. | Exposed natural materials that is communicative like CSEB blocks and Mangalore tiles used a comfortable atmosphere. |
| | *Nature* | The 3 existing Zelkova trees have been retained and used as play equipments by children. Full height sliding glass panels provide access to the central garden anytime | Consists of garden area with a pond, trees and shrubs acting as a breakout space for children. They also water these plants and harvest them | Existing need trees on the sites were retained. Each space was physically connected to landscape. Large openings and low windows connected to landscape outside. |
| **Physical Space Analysis** | *Classroom Density* | More than 20 students per class. There are about 32 students in one classroom. | The teacher to tudent ratio is 1:25 | The teacher to student ratio is 1:15 |
| | *Classroom Shape* | Sector of two concentric oval shapes forming a shelter around an atrium. Borderless classroom without any partition eliminating nervousness caused in Children when contained in enclosed space. | Rectangle | Rectangle |
| | *Furniture Arrangement* | Clsutered seating encouraging group learning and social skills | Classroom has 3 spaces. An area where teacher teaches with blacboard and seating, clustered seating encouraging group learning and pave area for individa explorations | Children sit on the ground and learn. The tables are low as per child anthropometry that could be moved. They had clustered seating arrangement. The room sizes are non-structured allowing both small and large groups to work. |
| | *Flexibility* | The timberboxes present act as storage shelevs, benches, seats, tables and movable wall partitions.Roof used as a playground. | The courtyard suppports play performance and learning Outdoor spaces used for classes and performances apart from play. Corridors encourage play activities. | The corridor is used as doll house, lego corner, reading corner, puzzle corner, extended dining area and gathering spaces. |
| | *Scale Consideration* | The ceiling height is 2.1m encouraging cooperations. The furniture is as per child anthropometry. | Structural arches breakdown the ceiling height of 3m. The furniture is as per child anthropometry. | To lessen the trauma of a child's first experience outside home the spaces emerging out from the central spine is to the scales of the child |

studies considering the variation of textures that are accessible by children to improve their sense of tactility which is important for child development It should be incorporated in school designs.

c) A crucial parameter nature was present. Urban environments have declining green pockets and children also do not have safe access to open spaces. Therefore, the most ideal condition is to provide possibility for children to build direct relationship with the nature by integrating landscape in learning spaces taking into account the psychological benefits.

d) All the case studies gave importance to natural light understanding its psychological benefits. The common strategies like courtyards and skylights were adopted by all.

e) The case studies also satisfied parameters of flexibility and scale consideration giving the children using them self-esteem, confidence, cooperation, sense of place and attachment.

## Conclusion

This research demands unlearning and re-learning of user groups and spaces in-order to understand the context better and required an informed individual to argue and analyze rather an architecture student. By the end of the literature study, it is very evident that apart from built form and functions the need of environmental psychology play a crucial role in learning spaces for children. If we involve children as one of the stakeholders of our design process, then each individual idea can be translated into a bigger collaborative design.

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# FATHOMING FAÇADES

ANALYSING THE GAP BETWEEN ARCHITECT AND USER PERCEPTION OF RESIDENTIAL FACADES IN SUBURBAN BENGALURU
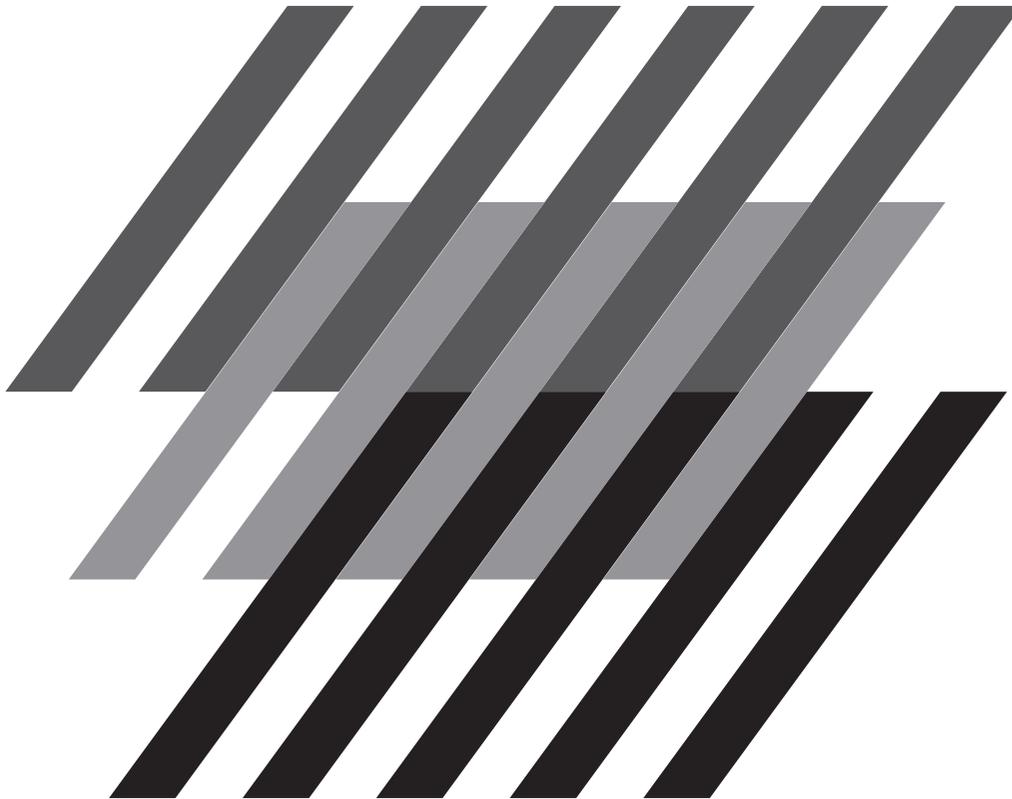
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## ABSTRACT

*Architecture is often perceived as a technical vocation that deals merely with the construction of the built environment. Many a time, we forget the humane intention that drives it into existence, populates it, customizes it and makes it palatable. The aim of this research paper is to study facades as a human expression and to explore how this is seen in the residences of suburban Bengaluru, India. For this study, photographic documentation and a survey was conducted with 15 residents (non-architects) and 15 architects, that focused on their perception about the various elements of facades such as murals, railings and colour themes. The findings were then used to analyze the gap between the architect's intentions and user perception of façades, thus helping us understand the thought process of both. The paper concludes with a commentary on attempts that could be made to sensitize the architectural fraternity and user group towards the existing built environment.*

*Keywords: facade, mural, railing, color scheme, user perception, residences, architect*

## INTRODUCTION

The primary goal of architecture is to create a sense of place through the design of a building or space. This might become the 'talk of the town' or possibly a city landmark owing to its popularity. The façade of the building is one aspect that helps to bring a building into prominence. For the context of this paper, a façade refers to the exterior of a building, typically the front wall elevation. Facades are embellished with various components to enhance the attractiveness of the building. Sometimes the facade expresses a person's tradition or style. New materials and looks are experimented with, to highlight the front elevation, and give it a more beautiful appearance, be it the regular plaster, bricks and concrete or glass that gives a sleek and shiny appearance.

Yammiyavar & Roy (2019) state that 'the building façade, as a communicating interface between inner and outer building spaces, is mostly a matter of evaluation by visitors. Perceptions are formed by the building's façade, its entrance, atmospherics and ambiance'. The facades have a vital role in the structure. The aim of this is to explore how this differs from various places in a suburban area. The thought process and inspiration from the surroundings, behind the façade, play another huge role (Dadhabe, 1975). "User satisfaction is one of the main problems for the architect, which can be caused by differences in the cognitive and physical basis of opinions between architects and laypersons" (Gomeshi & Jusan, 2012; Salihbegovic & Chizzoniti, 2020). The facades tell the story of the user more than the elegance of the building and having the residential homes built to their taste which is quite specific and rare to find.

According to Nagendra, Unnikrishnan, & Sen (2013), there does not appear to be any obvious relationship between the time-span for which a site has been urbanized, and the degree to which rurality still maintains its influence on these fluid urban landscapes. Thus, even some of the oldest areas in Bengaluru which have been part of an urban centre for centuries, exhibit aspects of rurality, as much as other recently developing peri-urban parts of the city.'

But it is mostly because, most of the people migrated from other parts of the world for education and job opportunities, the residents started to buy plots in the sub-urban areas at a cheaper rate and as time passed on, they even designed houses for themselves or for renting out. The concept of employing architectural services is still new to them. Instead, they usually hired contractors since they designed and built for lower rates. This led to the designing of unusual and uncanny facades throughout the suburban area.

Suburban Bangalore is witness to spurts of development in the form of residences, either as independent houses or buildings designed specifically for renting out, popularly known as 'PGs' (short for 'paying guest') or sometimes a combination of both (the owner stays on the ground floor and rents out housing units in the storeys above). These constructions are sporadic, intent on utilizing every square feet area of site available, often not adhering to byelaws of setbacks. The most important and eye-catching aspect of such a construction is main road-facing facade, where the owner and his/ her contractor overdoes himself/ herself and exaggerates his aspirations. This is also often the only façade that can be viewed from a distance and its embellishments appreciated.

The objective is to understand the quintessence of these facades as a motley of design elements and materials and the motive behind creating such façades.

## LITERATURE STUDY

Godse (2021) mentions that 'facades have always been an element of experimentation and expression since the past. Hence considerable number of derivations and variations can be identified in façade design since the past up till now', while Ojo & Kayode (2006) say that 'Outdoor beautification and varied spatial positions and sensations of colours in the built environment create visual contrasts which contribute to urban aesthetic development.' The variations largely occurred due to the user groups and their preferences. Salihbegovic & Chizzoniti (2020) have said that the 'aesthetic and qualitative value approaches relate to visual appearance but impart distinct spatial and formal qualities where a symbolic expression not only affects built form but clearly defines the structure of space.' The symbolic expression could be seen in the built form, especially the façade and this helps the user to tell their own story. 'Just as an addition of a painting or mural enhances the quality of the constructed space, similarly, the application of one kind of colour gives a varied psychological effect. Also, when certain and proportions are worked out mathematically, space gets a different feel and hence, one cannot ignore the beauty of sculpting, colour of painting and play of elements.' (Ujjwal Arora, 1998). Further, Wambua (2020) also adds that 'murals should be seen as natural treasures because of their salient artistry. With devolution and the decentralization of administrative power, murals should be condensed and taken up as county heritages.' The murals on façade, the railing and colour theme used in each building is based on their beliefs or traditions.

**Method, study area, scope, and limitations**

Parameters that suburban residential facades may be studied under include construction techniques, time taken for construction, proportion/ geometry. *Drishti bommai,* pumpkins and lemons as explicitly territorial markers, becoming an integral part of the facades is yet another aspect that may be studied as user expression. But these parameters may be studied in great depth in another paper as they are beyond the scope of this paper. Also, while user experiences of façade elements may be studied for all senses, for the scope of this paper, we have stuck to elements that help understand the visual interest of both the user and the architect.

Façades are seen to invoke emotions and create perception; for example, it is a popular notion to equate tile cladding to having spent money and hence is seen as something luxurious among non-architectural user groups. Elements used on façades, that are critical in forming perceptions of users and architects were chosen for this study. These were then examined, considering how they contribute to a successful understanding of two different perspectives. In this research paper, we investigate the facades in suburban areas of Bengaluru such as Thindlu, Soladevenahalli, Vidyaranyapura and Jalahalli and analyze the preferences of the users and the architect3 with respect to three parameters namely the utilization of murals, handrails and colour themes.

While vastu2 plays an important role in determining which colour a building is to be painted in the context of South India, it is not within the scope of this paper to delve into that aspect. The analysis was done using survey forms that are filled by residents and architects recording their point of view regarding the facades in suburban areas and how the façade is different in these places. Photo documentation was done to gain an understanding of them and to document the differences.

A survey was conducted among 15 users of the selected dwellings and 15 working architects (through random sampling) of various age groups. Google forms were used as a medium to collect the responses. The users ranged from ages 21 to 55 years and worked in a variety of sectors such as civil engineers, shop owners, doctors, lecturers, teachers, and even students. The architects were in the age group between 26-65 years, with experience ranging from 22-48 years. The images of facades included below showing murals, handrails and colour themes (Fig. 1, 2 and 3 respectively) were included in the survey form and the users and architects were asked to respond to the same (see Fig. 4).

**IDENTIFICATION OF LOCATIONS**

The selection of locations for the study can be seen in Table 1.
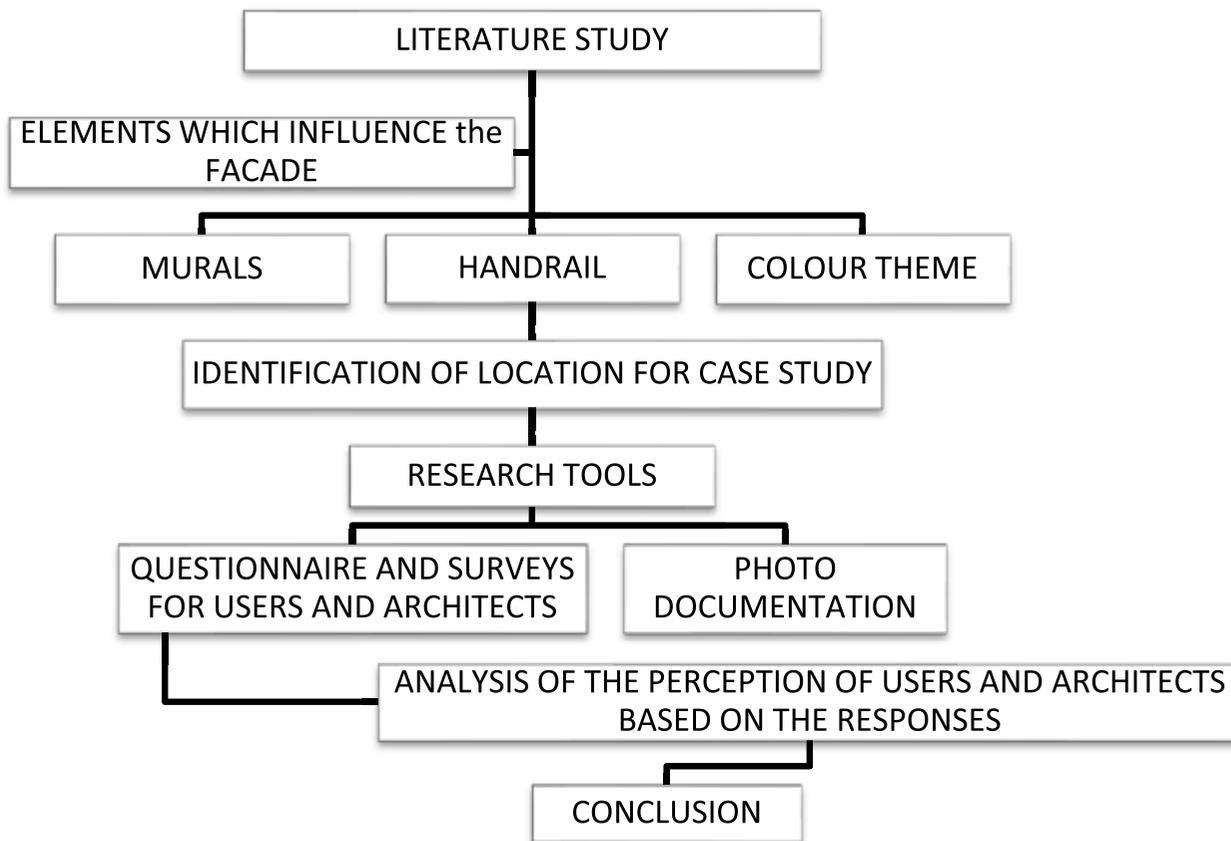
**Fig. 4:** Research Methodology Diagram
*(Source: Authors)*

## FINDINGS THROUGH THE SURVEY

The main intention of the users was that they wanted their building to stand out and hence preferred distinctive designs over professional styles. Murals on façades mostly reflected the user's faith in their caste or religion and their interest in the use of motifs in an artistic way. Even the architects liked the use of murals on the façade which made the façade interesting but were not happy with the use of religious murals on the façade. According to the architect's perception the handrail designs were not functional and uncanny whereas the users admired the designs. The users wanted a loud colour scheme to draw attention to their building in their neighbourhood, while the architects favoured the use of muted colours or suitable colour combinations that make the façade attractive rather than unearthly.

*The findings of the survey are seen in Table 2.*
The analysis of Figure 1, based on architects' responses is seen in Table 3.
The analysis of Figure 2, based on user responses is seen in Table 4.
The analysis of Figure 2, based on architects' responses is seen in Table 5.



**Fig. 1:** Mural as an element of façade
*(Source: Authors)*



**Fig. 2:** Railing as an element of façade
*(Source: Authors)*

**Fig. 3:** Colour scheme as an element of façade
*(Source: Authors)*

The analysis of Figure 3, based on user responses is seen in Table 6.

The analysis of Figure 3, based on architects' responses is seen in Table 7.

### ANALYSIS

The front façade of the building, due to various reasons mentioned previously in the introduction, becomes the show-stopper in the charade of grabbing attention of all observers, architectural or otherwise. It becomes a melting pot of all experimentations be it colour, texture, mural or any other feature that is latest in the market.

One reason for using multiple colours on small portions of the façade may be to indicate the usage of sample paints as a cost-effective technique, but the relevance of this claim needs to be investigated further. Most of the users were happy and satisfied with the façade design whereas the architects felt that the façade designs could be better. This happens because of the prevailing gap between architectural academics and the actual process of construction in the built environment.

The vernacular style has never been averse to colours or ornamentation on facades of residences. It has always been far more successful at expressing desires of beauty and grandeur of the users that inhabit them. Contemporary architectural education is strongly influenced by the international works of modernist architects (read 'great masters') who are treated as gods within the architectural studio. It almost feels like the vestige of colonial education to force the preference of colours, geometry and texture that were relevant to a culture and time distinct from the present us, on students. Seldom does a studio focus on understanding the immediate geographical environment in which the college is located or from where its students emerge and the trends and technologies prevalent in the ongoing construction that emerges from the locality.

Table 1: **Selection of Location**
*(Source: Author)*

| Façade Element | Location |
|---|---|
| *Murals* | Vidyaranyapura |
| | Thindlu |
| *Colour scheme* | Thindlu |
| | Jalahalli |
| | Soldevanahalli |
| *Railing* | Thindlu |
| | Soldevanahalli |

Table 2: **Analysis of Figure1 based on user responses**
*(Source: Compiled by Author)*

| Aspects | User Response | Summary |
|---|---|---|
| *Perceived description of façade by users* | Religious murals on façade to emphasise caste/religion.<br>Murals look like an extra fitting feature.<br>Murals used as works of art appears to be appealing.<br>Looks spiritual and nature loving.<br>The property stands out and is eye-catching among the other residences.<br>Beautiful and appealing | The use of murals on facade mostly indicated the user's belief in their caste or religion. The users had the belief of having prosperity if the religious murals were placed on façade in a specific manner. Majority of the users were sincere about their identity and were proud to show it through facades with mural designs even if the mural was causing visible contrast and was not going well with the surrounding or building itself. |
| *Perceived description of owner by users* | The owner appears to be pious and is passionate about the usage of motifs on the façade.<br>Desires to highlight their home and establish their own individuality using murals. | |
| *Interest generating* | 70% of the users stated that the use of murals on the façade was attractive.<br>20% stated that they did not find the façade to be interesting.<br>10% of them answered neutrally.<br>50% of them liked the residence with Lord Krishna mural. | |
| *Likeliness to build similar facade for own home* | 30% of them indicated they would not implement similar facade to their building façade.<br>50% of them stated they would employ similar murals in a modern setting.<br>20% of them stated that they will create a similar façade particularly the one similar to the Krishna mural on the façade. | |

Table 3: **Analysis of Figure 1 based on architect responses**
*(Source: Compiled by Author)*

| Aspects | Architects' Responses | Summary |
|---|---|---|
| *Perceived description of façade by architects* | • There was no backstory in the designs.<br>• The usage of murals was nonsensical, and religious murals on the front were placed in an improper area. The facade looks very unprofessional and repulsive at the same time.<br>• The designs appear to be colourful and opulent. | The usage of religious murals on the façade was considered improper by most of the architects. The façade designs were one-of-a-kind.<br><br>The designs were lavish, colourful, and amateur. The users were audacious and repulsive. The facade was sloppy and overly expressive. Most architects stated that they are prepared to create a façade similar to the one with Lord Krishna mural, and just a few stated that they will design a façade like this if the client requires it. |
| *Perceived description of user by architects* | • The users may be vaastu-oriented and attempting to emphasise their caste or religion.<br>• The users were overly expressive through their façade.<br>• The users were trying to mark their territory in their neighbourhood.<br>• The users are proud and bold to show-off their design | |
| *Interest generating* | • The use of murals on the façade was thought to be intriguing by 30% of the architects, while the usage of murals on the facade was considered undesirable by the remaining 50%.<br>• 20% of them stated that there were a few murals that they found fascinating.<br>• 50% of them liked the residence with Lord Krishna mural. | |
| *Likeliness to suggest similar facade to the client* | • 60% of the users said that they found the façade to be interesting because they liked the idea of using the murals on the façade.<br>• 30% of them said that they would not use murals on the façade as they felt it was old-fashioned and the building might look too religious.<br>• The rest 10% of them responded neutrally. | |

Table 4: **Fig.2 Analysis based on user responses**
*(Source: Compiled by Author)*

| ASPECTS | USER RESPONSE | SUMMARY |
|---|---|---|
| *Perceived description of façade by users* | • The railings are very weird, attractive but have no meaning.<br>• The railing looks like a symbolic representation of the owner's imagination.<br>• The design is complicated and difficult to clean and maintain.<br>• Looks like they are built by contractors and not professional architects.<br>• Looks like a retro style design | The designs were very uncanny and incoherently attractive.<br><br>The users found it difficult to clean and maintain the railing because of its complexity in design. Many said that they had a neutral thought on the design. It looked more like a symbol than a railing. Majority of the users said that they will try to implement similar railing designs and a very few of them stated to not use such a railing design as it felt illogical. |
| *Perceived description of owner by users* | • The owner might be from a middle-class background<br>• Confused in the selection of design.<br>• Seems to be old-fashioned and mediocre.<br>• Boring and old fashioned. | |
| *Interest generating* | • 50% of the users said that they found the handrail designs to be interesting because they liked the idea of using symbolic railing designs on the façade.<br>• 30% of them said that they would not use such railing design on the façade as they felt it was old-fashioned.<br>• The rest 10% neither liked it nor wanted to implement it. | |
| *Likeliness to build similar facade for own home* | • 20% of the users said that they will not use similar railing designs in their residences as they felt it was meaningless.<br>• 60% of them said that they will implement similar railing designs in their own houses as they felt that the designs were incredibly unique and eye-catching.<br>• 20% stated that use similar designs in a better way. | |

Table 5: **Fig.2 Analysis based on Architects' response**
*(Source: Compiled by Author)*

| ASPECTS | USER RESPONSE | SUMMARY |
|---|---|---|
| *Perceived description of façade by architects* | • The railing designs were unique and unbelievable.<br>• There was a lack of taste and treatment in the designs.<br>• the designs for the railings were unsightly, crowded, and unprofessional.<br>• This appeared to be highly symbolic.<br>• The design needed to be more abstract. | Many architects found the use of the displayed symbols on railing as inappropriate. The designs are very unusual yet eye-catching. The users might be proud and confident in displaying their creation. They seem to be highly expressive and want to emphasise their frontage through their railing. They also felt that the owners preferred style over safety. Majority of them stated that they wouldn't implement such a railing design in their design and very few of them said that they were willing to implement this if the client wanted them to do so. |
| *Perceived description of user by architects* | • Most of the users were tenants.<br>• Excessively expressive and inventive<br>• Desires to emphasise their frontage.<br>• The designs were flashy and outlandish.<br>• Inappropriate use of railing. | |
| *Interest generating* | • About 40% of the architects thought the railing was both interesting and strange. (For example, the railing with a heart and one with arrows)<br>• 50% of them felt that the railing designs were uninteresting.<br>• About 10% of those polled thought the designs were alarming.<br>• the one with the heart and the one with the arrows was considered as the most engaging façade from all the shown examples | |
| *Likeliness to suggest similar facade to the client* | • 80% of them said that they will never design such a railing for their clients.<br>• 20% of them said that they might use similar railing if the client requires for them to do so. | |

Table 6: **Fig.3 Analysis based on user responses**
*(Source: Compiled by Author)*

| ASPECTS | USER RESPONSE | SUMMARY |
|---|---|---|
| *Perceived description of façade by users* | • Colourful, attractive, and interesting<br>• Use of bold and bright colours to create emphasis.<br>• Few of them felt that the selection of colours was surprisingly good.<br>• Vibrant and classic use of colours | The exterior appears to be brightly coloured. The usage of numerous colours on the façade piqued the interest of the users. The owners may have attempted to draw attention to their structures by using bright colours. Most of them preferred to employ such colour combinations on their façade, and only a handful stated that they would never use such colour combinations. |
| *Perceived description of owner by users* | • The owner might be too much oriented towards colours.<br>• More interested towards colourful façade and create emphasis through it. | |
| *Interest generating* | • 70% of them thought the façade was interesting since it was colourful.<br>• 20% thought the facade was dull and strange.<br>• 10% regarded the façade to be neither fascinating nor uninteresting. | |
| *Likeliness to build similar facade for own home* | • 70% of them said that they would love to use similar colour scheme on their façade.<br>• 30% of them said that they will never use similar colour scheme and the rest 10% said that they will use a subtle colour combination on their façade. | |
| *Most engaging façade from the above examples* | • 40% found the residence with green and yellow colour combination to be fascinating.<br>• 30% felt that the residence with green, blue, and orange combination to be interesting<br>• The rest 10% felt that beige and green to be interesting. | |

Table 7: **Fig.3 Analysis based on Architect response**
*(Source: Compiled by Author)*

| ASPECTS | USER RESPONSE | SUMMARY |
|---|---|---|
| *Perceived description of façade by architects* | • Excessive usage of numerous colours.<br>• The designs are disjointed in terms of colour harmony.<br>• the colours utilised are very bright and overly dark.<br>• The colours appear disgusting and awful.<br>• Unbalanced colour palette. | The architects found the use of too many colours perplexing and without motive. The colour palettes were appropriate. The owners probably wanted their homes to stand out from the crowd. When it came to choosing colours, there was a lot of uncertainty. The structure appears to be attractive due to the use of unusual colour combinations, but it is quite unpleasant. A majority stated that they will never use such colour combinations in their designs. |
| *Perceived description of user by architects* | • The user was perplexed by the colour selection.<br>• Ideology, values, and class are all lacking.<br>• Use of bright colours to draw attention to their residence in their neighbourhood.<br>• The users might be experimental | |
| *Interest generating* | • The usage of colours was deemed to be intriguing by 35% of the architects.<br>• he usage of several colours piqued the interest of 45 percent of respondents.<br>• 20% of them said colourful facades were unattractive.<br>• 50% of them found the façade with the use of green and yellow to be engaging. | |
| *Likeliness to suggest similar facade to the client* | • 45% of them stated that they would never utilise such colour schemes.<br>• 30% of them stated they might employ such colour schemes if the client suggested it. | |

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With the help of the survey responses, we found that there was a dramatic difference between the perception of the users and the architects with respect to the design of the façade. We also discovered that the concept of a client hiring an architect to design a residence was quite alien to many users in the selected locations and most of the residences were constructed by the contractors or mistris3 without the supervision of the architects. The elimination of an important profession from the process of building a residence has affected the design of façade.

## CONCLUSION

The actual process of constructing a house of one's own is governed by a series of on-site, last-minute decisions and changes, even if prior planning and designing is done, whether by architects or others. This happens due to fluctuations in the availability of material, labour and infrastructure which affects the cost and timeline of the project. The presence of unsatisfactory facades in our built environment can be blamed on these as well. Preferences in design are aspirations that may not be translated into execution.

A residence is a 'once in a lifetime' achievement for many people. Hence it is important for the architects to understand how the users would like to interpret their ideas and desires and employ it aesthetically on the facade. Users are unable to make a final decision on whether to use specific design ideas which they desire in order to achieve an aesthetically pleasing design with the assistance of non-architects (Ghomeshi, 2020). Prieto (2021) emphasizes that 'the aesthetic of our built environment is perceived as an important aspect to consider for the design of human-centred cities, but a problem quickly arises in the presence of clashing conceptions of what we understand to be aesthetically pleasing.' This paper investigates the disparity between users' and designers' perceptions of façades in Bengaluru-area dwellings which assists us in comprehending the thought processes of both architects and users. The users mostly incorporated their beliefs and traditions and were proud of their identity. Different aesthetic preferences among designers and users might be a challenge when designing a building. As a result, it is necessary for the users to be assisted by architects (Ghomeshi, 2020).

It is essential for us, as architects, to be sensitive to user preferences as well, and that we do not negate trends because we come from a different educational background. We should also question our stand as architects in the entire building process and why we are not included in a majority of the construction projects that happen in the world.

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### Endnotes
[1] The term architect may be read as someone who has undergone architectural education.
[2] Vastu shastra or the science of building that comes from ancient India, has prescribed rules for orientation and positioning of various spaces within a household or any other built structure that influence the lives and future of its inhabitants.
[3] Mistry is a term for a master-craftsman, foreman or supervisor of manual workers in India

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# REVIVING THE DAHISAR RIVER : ENHANCING ENGAGEMENT OF THE COMMUNITY WITH THE RIVER

**Shraddha Kher**
Final Year (2022)
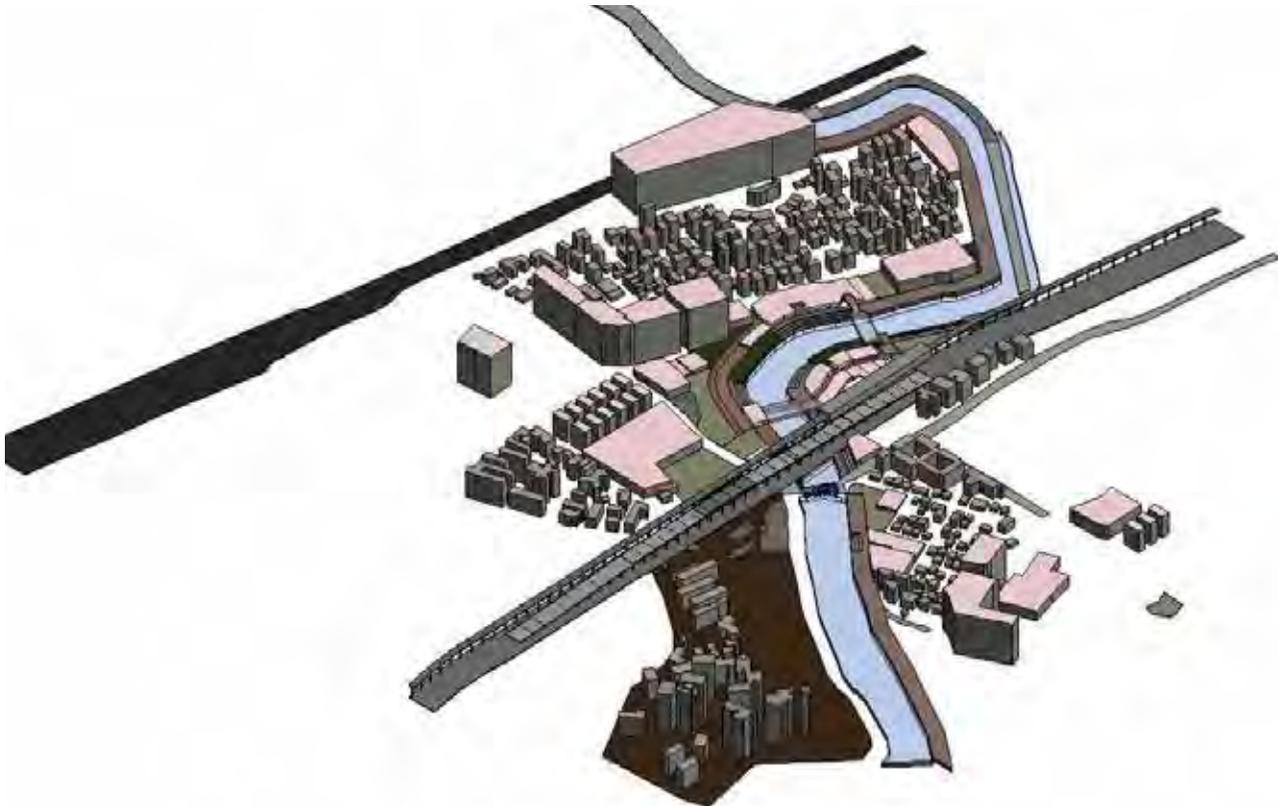IES College of Architecture, Mumbai
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## ABSTRACT

*Rivers have been significant in ancient civilizations all over the world as the source of water, food and culture. In the Indian subcontinent, rivers were considered sacred and a symbiotic relationship existed between the river, its fertile plains and the people, who held themselves responsible for the preservation of these resources. Over the years, rivers have been exploited for these resources and heavily encroached upon, intervening in their natural flow and behaviour. Rivers, especially in urban contexts, have been narrowed down and channelised artificially restricting its river's flow and aquatic life. This has resulted in a disconnected river edge and reduced human involvement.*

*Rivers of Mumbai are an example of this phenomena. The River Dahisar is one of the rivers that has degraded into a disconnected parasitic edge. The aim of this paper is to understand the methods and solutions to retrieve and revive the river's edge and transform it from a parasitic environment to a symbiotic one. Several research methodologies were undertaken. Primarily, the existing channel of R. Dahisar, its sectional condition, involvement of the people and contextual activities were mapped. This helped identify factors and issues leading to a disconnected edge. Secondary research included case studies of revived river edges to comprehend the solutions at both, practical and policy levels, successful designing of river edges, sectional treatment and land use proposals.*

*Key words : Urban rivers, river environment, natural river edge, revival of river, river activities, river edge land use*

## 1. Introduction

Mumbai, the financial capital of India, is known for its rich cultural, social, historical and natural heritage. Along with the infrastructure and industrial developments, it is also rich with abundant natural diversity such as forests, beaches, lakes, rivers, creeks, hills, forts, etc.

The city has four rivers flowing through it, as seen in Figure 1, namely, Mithi river (15 km.), Poisar river (approximately 8 km.), Oshiwara river (7 km.) and the Dahisar river (12 km.). Unfortunately, these rivers today are very polluted and have lost the character of what a river signified in an Indian context. In order to bring about a change in these rivers, it is important to create awareness, purify the river, retrieve the natural environment, revive the river activities and bring back the characteristics of a river in these water bodies (modern nallahs - mere streams of water).

Out of the four major rivers of Mumbai, one such exceptional river is the Dahisar river. The river like the rest originates inside the Sanjay Gandhi National Park, while flowing inside the National Park, it accommodates settlements around it that continue to exist even today unlike the other rivers. Hence the shorter length of the river and the varied river ecosystems and contexts the river flows through makes it a potential river to study, analyse, design, execute and bring about the necessary changes with an intervention.
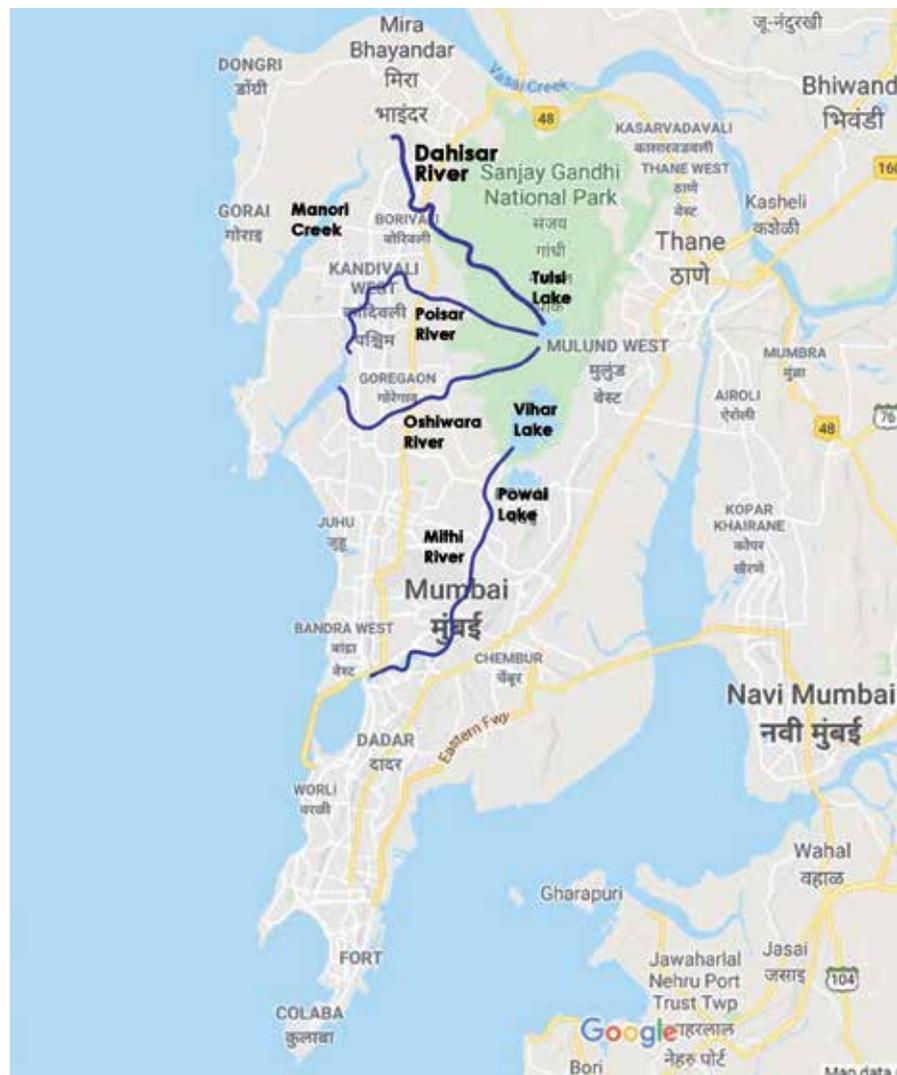


**Figure 1:** Location of rivers of Mumbai
*(Source: Base-Google maps; compiled by Author)*
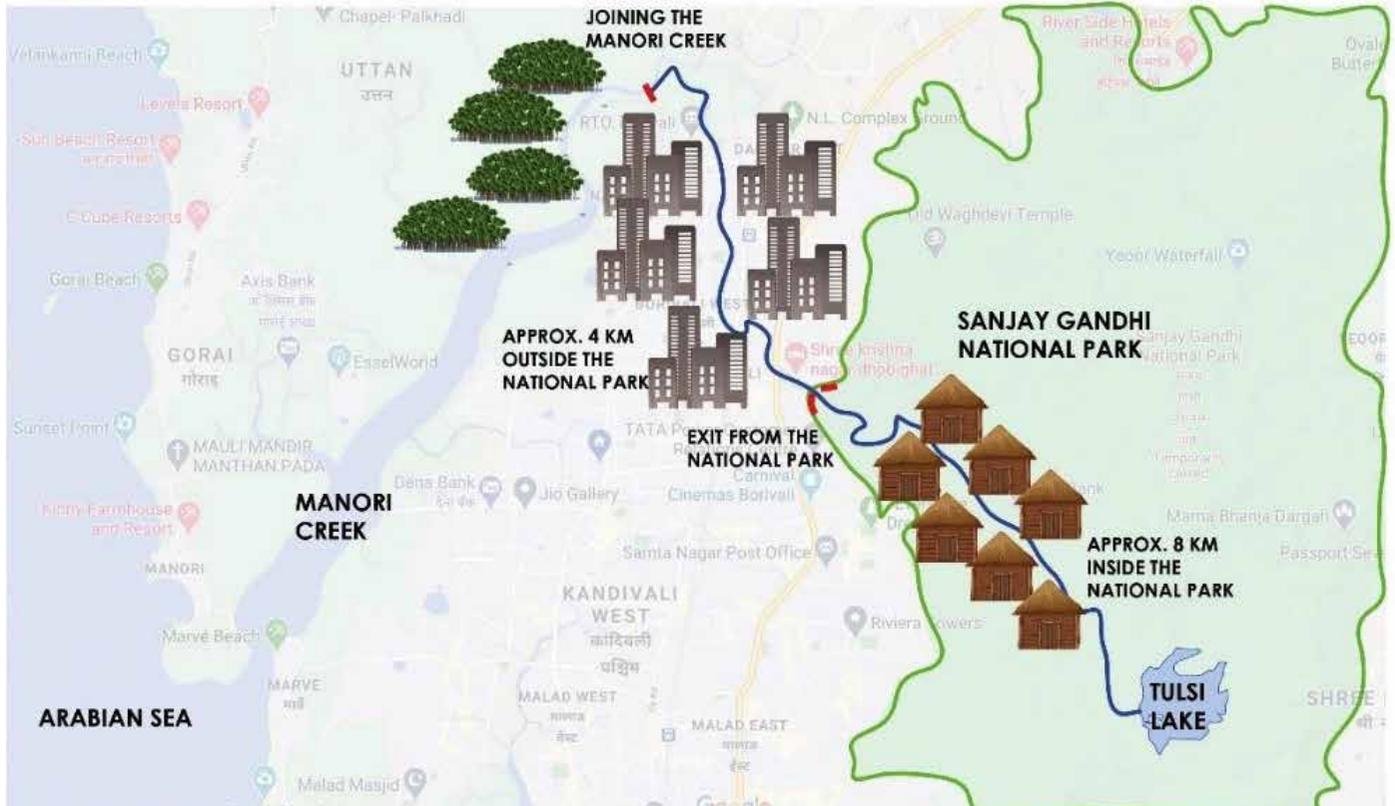
**Figure 2:** Origin and flow of Dahisar river
*(Source: Base-Google maps; compiled by Author)*

Figure 2 shows the path of the flow of the Dahisar river. The river originates at the spillway of the Tulsi lake located in the Sanjay Gandhi National Park, Borivali West. It flows through the National Park in a natural, uninterrupted setting for about 8 kilometres. On exiting the National Park it enters the city, flowing another 4 kilometres, where it is interrupted with uncontrolled development, until it reaches the Manori Creek in a mangrove patch to meet the Arabian sea.

The history of the river dates back to many years. As, inside the National park, numerous tribal settlements are to be found living along the river for many decades now. The people live off the river for their water and food needs. Outside the National Park, residential, commercial, institutional, etc. structures have come along. There are several roads and bridges constructed over the river catering to the transport (Bhende, 2015).

### 1.1. Issue:

*a) Dahisar river inside the Sanjay Gandhi National (SGN) Park :* The Dahisar river flows through SGN Park in the initial stage maintaining a symbiotic environment as seen in Figure 3. The river houses several tribal settlements (pada), provides water, and helps to cultivate the food for the people. The river shelters the life inside – the tribal settlements, wild life, animals, birds, vegetation etc. The tribal settlements along the river inside the SGN Park produce handicraft items from the materials available near the river. Along with this, these rivers provide spaces for recreation, maintain a healthy ecosystem, thus, improving the quality of life for its people (Nair, 2020).

*b) Dahisar river outside the Sanjay Gandhi National Park:* The coastal city takes immense pride in its beaches and the sea. Tourists from all over the world visit the city for its coast and the marine drive. The rivers, unfortunately, have lost their significance.



**Figure 3:** Sensitive hierarchy of zones around the river
*(Source: Author)*
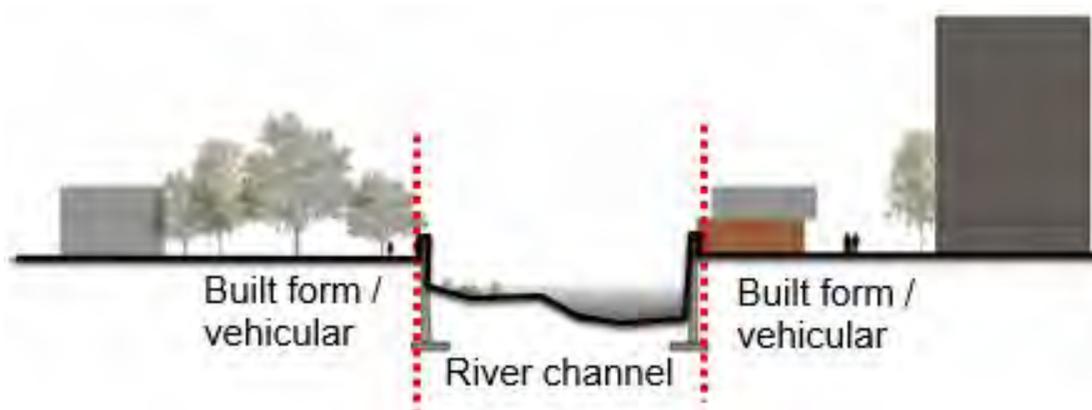
**Figure 4:** Intervention by zones around the river
*(Source: Author)*

Although the river flowing through the city provides food, water, recreational spaces, and environment for the ecosystem, the city has failed to preserve the river over the years. Overwhelmed by the industrial development, the river started to become the potential drains of the city, seen in Figure 4.

### Causes
1. *Encroachments around the river and their ill effects:* Hundreds of residents live along rivers and nullahs in Mumbai. The River Dahisar has buildings and slums lining its banks.
2. *Flooding of the River Dahisar:* Seasonal flooding due to the River Dahisar has been observed since many years now (Mid-day, 2017).

### 1.2. Site:
Along the entire flow of the River Dahisar, natural setting, settlements, existence of structures of varied land use have been observed, seen in Table 1. Over the years, there has been a lot of development in terms of construction and infrastructure along the River Dahisar in the context of the city. In order to study the site and locate areas holding scope of study of the river patterns the overall land use along the river has been studied and following observations have been made.

### 1.3. Architectural Model:
On observation and according to the study above, the following elements are proposed for the architectural model of the River Dahisar:
1. Facility to biodegrade the waste dumped in the river.
2. To revive social, cultural, religious, occupational activities performed around the river.
3. To revive the farming culture.
4. To revive the association of people with the river.

### 1.4. Aim and objectives :
The aim is to preserve the natural heritage of the Dahisar river and reviving people's engagement with the river by introduction of social, recreational, educational and religious river based activities.

*Objectives in order to achieve the above mentioned aim are:*
1. To study and analyse the flow pattern and seasonal behaviour of the river.

2. To study the existing fabric and demographics of the river and the context around
3. To study the existing sectional condition of the river and the involvement of the people with the river.
4. To study the various scientific processes involved in the cleaning process of a river to preserve and enhance the natural heritage, vegetation, biodiversity in and around the river.
5. To engage the people with the river by introducing recreational, educational, social and cultural activities by reviving any river based activities carried on around the river.

## 2. Literature Review
### 2.1. Ecosystem around the river: Riparian zone
The riparian zone is one of many different biomes, which represent different communities of flora and fauna. While the riparian zone is not exclusive to rivers, it is a good way to remember the general plants and animals which occupy the region. Further, the loss of the riparian zone also removes the shade present over the stream. (BD Editors, 2018)

*A Natural method for river restoration : Inversion and Oxygenation Aeration:*
Normally, in a flowing water body like a river the water at the surface of a river is flowing and is in motion. The surface water of a river is thus oxygenated by the atmosphere, but the water at the bottom is almost still with 0 mg/l dissolved oxygen. To aid this treatment, a river restoration inversion system is used.
CLEAN-FLO International has developed a Continuous Laminar Flow Inversion & Oxygenation aeration system & water treatment process for river improvement & stream restoration. In this system the water at the bottom of the river is brought to the surface of the river through Oxygen diffusers so that the entire water is oxygenated and in circulation (Clean Flo, 2020).

*Benefits of this system:*
1) *Beneficial bacteria and health of aquatic life:* In this process, beneficial bacteria feed on the organic matter, and the organic sediment is biodegraded to carbon dioxide and water. Insects feed on the organic matter and the bacteria; fish feed on the insects. The result is an overall improvement

in fish health and growth rate. In any water body, when the bottom is oxygenated, phosphorus and nitrogen in the water column is bound to the sediment where it becomes food for the beneficial bacteria and insects.

2) *Killing of pathogens:* Many pathogens are strict anaerobes and require a nutrient broth for survival, and practically all pathogens are killed by ultraviolet light emitted by the sun. Also, aerobic bacteria feed on pathogenic bacteria. Therefore, as a result of highly oxygenating the water body, creating an environment where aerobic bacteria thrive, reducing the nutrient media, raising the pH, and exposing pathogenic bacteria to sunlight, these pathogens are weakened or killed.

3) *Elimination of Toxic gases and odour:* Toxic gases along the bottom are then neutralized and foul odours quickly disappear.

## 2.2. Soil and Vegetation

• *Soil type :* The predominant soil cover in Mumbai city is sandy, whereas in the suburban district, the soil cover is alluvial and loamy.

• *Vegetation :* Table 2 lists the typology of vegetation and species of trees that can grow naturally or indigenously on and around the site that provide shade, like the Arjuna tree which is generally found around river beds. Arjuna exhibits yellow flowers from March to June. It has a woody fibrous fruit that appears between September and November (Nijhawan, 2018).

## 2.3. Storm water drainage systems:

• *Sedimentation Basin:* These are used to improve stormwater quality and reduce sediment loads. They remove (by settling) coarse to medium-sized sediment from water. Sedimentation basins can take various forms, as permanent systems or as temporary measures to control sediment discharge. (Alcorn, p. 31)

• *Application:* These can be used at places from where the water is not going to be drained into the river directly. It can be taken to a water treatment plant before entering the river.

• *Vegetated Swale:* These are used to remove soil particles and move stormwater through buffer strips and bioretention systems. Swales utilize land flow and mild slopes to convey water slowly downstream. They protect waterways from damage by erosive flows from frequent storm events. (Chuck Alcorn, p. 31)

Application: These can be used where in the water is directly drained into the river. The road side drain where the water does not contain chemicals and other pollutants.

## 3. Methodology:

*The primary data was gathered as follows:*

1. Through observation and mapping of the flow pattern, existing vegetation, seasonal behaviour, sectional treatment, contextual activities, response to the context and land use around the river.

2. Interviewing the people living around the river about their lifestyle and their response to the existence of the river.

*The secondary data included :*

1. Development proposals, policies, drawings, plans, sections, photographs available of the river and its context.

2. Case studies and mechanisms related to the cleaning processes of the river and extracting the architectural and landscape design elements.

3. Case studies and design interventions done on the river and extracting design elements such as the proposed land use, sectional treatment, river front designs, typology of built intervention, etc.

## 4. Results and Discussion

### 4.1 Design Programme and Area Statement:

• Total delineated influential area: 30,55,241 sq.m.

• Delineated area (Intervention zone) in selected stretch : 9,01,702 sq.m.

• The intervention directly caters to approximately 250 - 500 people in Public spaces at a time and about 60 - 150 people into semi private and private spaces depending on the function of the space. The area distribution given to the components of the intervention is given in Table 3.

### 4.2 Design Intent

i) The aim of the intervention consists of two functions: i.e., Revival of the river environment and Enhancing engagement of the people with the river. These two functions can be executed simultaneously.

ii) The site is strategically chosen as it is right at the junction of the river transitioning from a natural unintervened environment inside the SGNP to the haphazardly intervened urban environment. This stretch of site targets the first point of ingress of contaminated water into the river.

iii) An overall master plan for the delineated area for the selected stretch can be proposed which can cater to redevelopment of the existing development. The proposed master plan would consider the components mentioned above in the Area Statement. Some of these components which would be then detailed out.

iv) While zoning, the functions such as river promenade, solid waste management, waste water treatment plants, recreational landscaped area, river markets (referred to as Redevelopment Programme in earlier chapters) need to be provided more ground cover with less spatial density, as these would be directly catering to the river revival and the existing communities and people at the local level.

v) The functions such as rehabilitation of existing settlements, Commercial development, Visitors centres and Administration blocks (referred to as Value Addition Programme in earlier chapters) would be proposed with lesser ground cover with higher density built forms as they primarily cater to the visitors at the city and regional level.

vi) In order to achieve the aim, the ideal physical form for the Redevelopment programme would have to be responsive to the context, involving the community in the functions, climate responsive, sensitive to the river environment.

vii) Similarly, the value addition programme would have to be efficient, creating awareness about the significance of the river and the environment, highlight the history of the river to its visitors, providing a recreational activity, revenue generating which can cater the intervention model.

### 4.3 Architectural Exploration

The aim of the architectural exploration is to initiate a sense of belonging, to facilitate interactions, to revive degraded environment along with sustaining the connection of the users with the river.

### Design considerations included:

• Controlling the pollution of the river to slow down the river channel to facilitate oxygenation, catering to the river meanders and introducing wetlands along with a series of spaces as seen in Figure 5.

**Figure 5:** Site plan of the intervention
*(Source: Author)*
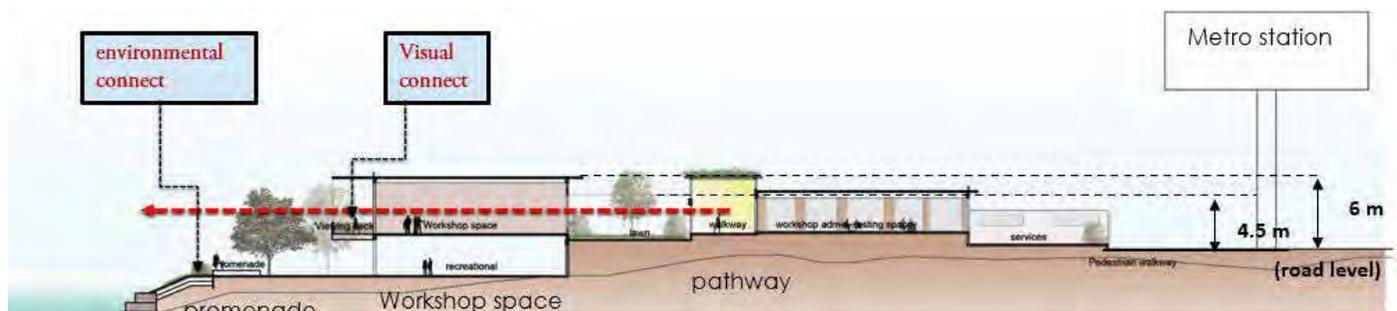


**Figure 6:** Two levelled access to the river
*(Source: Author)*
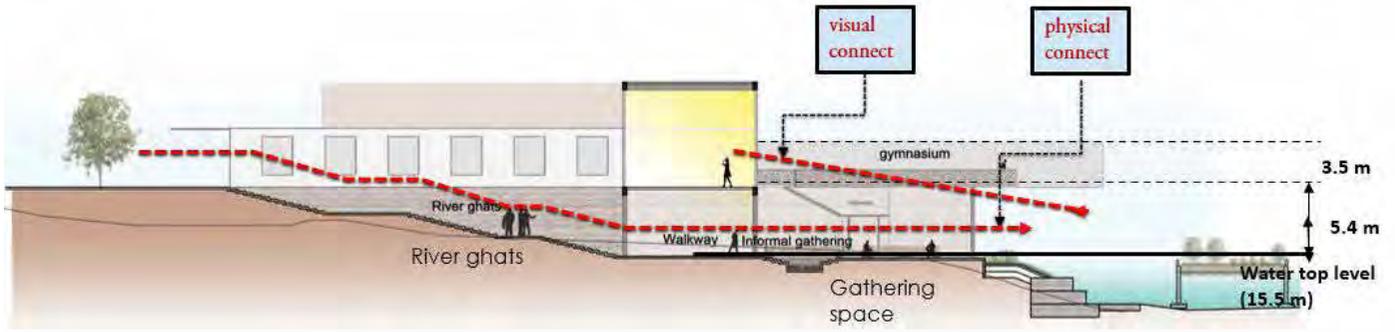
**Figure 7:** River ghats
*(Source: Author)*



**Figure 8:** Interior elevations
*(Source: Author)*

**Figure 9:** Activity mapping
*(Source: Author)*

• Enhancing engagement of the community with the river to provide visual access, creating awareness about environment sensitivity, physical access to the river, recreational and community spaces, seen in Figure 6, 7 and 8.

## 5. Conclusion and Recommendations

The intervention replaced the existing concrete retaining wall with a natural edge. Created a buffer zone along the river. Provided access points at strategic locations, seen in Figure 9. Sensitive rehabilitation of the settlements. Along with the above design considerations, additional passive design strategies such as placing of building blocks to promote cross ventilation and wider vision area, built form responding to the wind, while using natural and locally available materials and introduction of jaalis, louvers and green wall system.

Table 1: **Broader existing land use study along the Dahisar river**
*(Source: Author)*

| Typology | Feature |
|---|---|
| Natural setting | Vegetation |
| Open spaces | Parking spaces, playgrounds, cremation grounds |
| Residential | Rural tribal settlement, low rise, midrise, high rise, slums, old age homes |
| Residential + Commercial | Dhobi ghat, Tabela / cow shed (dairy farm) |
| Religious | Temples, masjids, churches, meditation house |
| Institutional | Schools, colleges, university colleges |
| Infrastructure (road network) | Western express highway, Sudhir Phadke flyover, New link road, Western line railway track |

Table 2: **Vegetation that can be grown along a river in the Riparian zone**
*(Source : Compiled by Author from: Grow Trees, n.d.; Nihjawan, 2018; Lalwani, 2011)*

| Objective | Common name | Botanical name |
|---|---|---|
| Reducing heat gain providing shade that can be grown along a river | Kadamba | Neolamarkia cadamba |
| | Neem | Azadirachta indica |
| | Lemon | Citrus limon |
| | Shisham | Dalbergia sissoo |
| | Pipal | Ficus religiosa |
| | Karanj | Pongamia pinnata |
| | Child life tree | Putranjiva roxburghii |
| | Arjuna | Terminalia arjuna |
| | Jamun | Sygyzm cumini |
| | Kanel | Cascabela thevetia |
| | Acacia | Acacia auriculiformis |
| | Mango | Mangifera indica |
| Shrubs that can be grown along water bodies | Baringtonia | Barringtonia lecythidaceae |
| | Lagerstromia | Lagerstroemia indica |
| | Henna | Ingadulsis mendhi |
| | Bougainvillea | Bougainvillea thema |
| | Plumeria alba | Plumeria apocynaceae |

Table 3: **Area distribution of all Components (Assuming average FSI = 2.5 for the Rehabilitation programme for the plot area of 45,814 sq.m.)**
*(Source : Author)*

| Colour Code | Component | % | BUA (sq. m) |
|---|---|---|---|
| | 1. Rehabilitation programme | 61.50 | 1,14,535 |
| | 2. Solid waste management | 0.02 | 46 |
| | 3. Water Treatment Plant | 0.10 | 186 |
| | 4. Riverfront promenade | 3.99 | 7,425 |
| | 5. Commercial | 0.98 | 1,820 |
| | 6. Recreational Landscaped spaces | 17.80 | 33,150 |
| | 7.River markets | 11.17 | 20,803 |
| | 8. Information centres | 4.31 | 8,019 |
| | 9. Administration block | 0.13 | 248 |
| | **Total** | **100** | **1,86,233** |

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**Shraddha Kher** graduated from IES College of Architecture, Mumbai in 2022. Being a resident of Borivali, Mumbai and observing the unrecognized River Dahisar closely, led to her dissertation. She currently works with Abhikalpan Architects and Planners, Mumbai as a Junior Architect.

**Prof. Vinit Mirkar** is the Principal of IES College of Architecture, Mumbai and a member of the Board of Studies of at the MGM University, Aurangabad, Dr. BAMU, Aurangabad, and Dr. BATU, Lonere. Fellow of IIA, he is an Executive Committee Member, Brihan Mumbai Centre of IIA. He is also a member of the Board of Examination and Education, IIA and of the Board of Reviewers of the Journal of IIA.

# DIALOGUE
# WITH
# AR. ELIZABETH BELPAIRE

**Ar. MANGUESH R PRABHUGAONKER**

**Elizabeth** has an M.Sc in Engineering Architecture from Ghent University with an Advanced M.Sc in Urban and Spatial Planning from Leuven University in Belgium. She has received several special mentions for visually communicating strategic and complex integrated spatial solutions at various architectural competitions in Poveis, Zurichm Ghent and Antwerp.

Elizabeth Belpaire an urban regional planner and an engineer architect with extensive international experience across scales and contexts promote the significance of architecture, urban design, and planning in Belgium, France, and Switzerland, with UN-Habitat development, disaster risk reduction, and local agenda 21, in Vietnam secondary cities leading post-conflict programmes and creation of a new strategic integrated urban planning systems in Kosovo, development of a regional capacity building instrument addressing housing, informal settlements with governments and southeast Europe partners, regeneration of West bank historical centers, design of a Foundations Urban 95 strategy for cities to support healthy childhood developments.

Elizabeth always mentors young research scholars in countries like Poland, India, and so on.

Elizabeth initiated the first women in planning events at the WPC, co-created the ISOCARP-Community of practice on urban health and climate change Taskforce. She is also a member of the expert advisory committee of the International Society on Urban health, with a focus on developing new and strategic thinking guidelines including her presence at SDG11 and TEDx in Geneva.

### Perspective on Urban Planning.

With emerging trends and challenges in our cities, performing urban planning depends on equity, inclusiveness, and justice with sensitive values for waves in the urban domain.

Her focus has been on critical climate crises with globally faced macro and micro-level context-based planning strategies. The built and natural environment has been at the forefront of her planning solutions with region-specific contextual aspects, as prime design tools. Multidimensional layers in capacity building with their complexities make her sociocultural perceptions directional avenues in her work. Unhealthy levels of pollution also make here always introspect beyond only design solutions.

### Affordable Housing - a way forward.

Health-based design and planning strategies at both levels, especially the physical world and the virtual world make her work re-invent and explore appropriate urban health environs in her world:
Every city from Brussels, noirs leading towards cities like HongKong, Geneva, Capetown, Gaza, and many more reflects her design approach the urban and spatial planning, always practiced a roadmap to mitigate and adopt measures towards inclusivity across public housing including practical urbanism issues related to even refugees.

### Naturalistic design and planning approach.

Identity-based design guidelines always focused in her naturalistic designs and planning approaches that always emerged from characteristic identity-based visions, beyond just blocks in the housing palette. Social and cultural components always got integrated into her works with the ability to transform spatial organizations of many neighborhoods and get them integrated into holistic nature based and environment-friendly master plans.

### Governance Modules in planning.

Her work with diverse cultures and rapidly changing contexts, transforming sales from architecture to urban design with technology-based spatial planning layers got streamlined in documents that made its position in administratively approved policies of Governance. Her thinking also highlighted sustainable development strategies that touched upon various disaster examples, from grassroots to global case studies.

Addressing the local government, non-government organizations, civil society, and stakeholders provoked her to investigate existing planning processes, from down to top and top to down with human-centric objectives and their needs in spatial planning.

### Current challenges in planning.

Regeneration of poor neighborhoods with agenda of entire community development, as part of long-term planning strategies and also supplemented with special rental housing policies, seems a concern that makes her work extensively with research and discover strategic values and potential

of the landscape structure acting as a sponge, an exclusive concept which is now very critical in the context of climate change and also being used as prime agendas in most of the developing cities. The happiness index assessing the global charts, with wealthy to healthy cities, has been a part of her research with a vision towards working on innovative housing approaches that focus on social, economic and environmental co-benefits.

### Human-centric settlement strategies.

AS WHO highlights that environment is a crucial factor of health, she mentions the role of all like toddlers, young, girls and boys, teenagers, caregivers, women, elderly, refugees, etc in urban planning and how it affects health and well-being n our settlement patterns.

She also practices the factors of climate crisis impacting biodiversity and health as some of the objectives at work.

### Environment and way forward.

Through her planning tools, she prefers to combine short term and long-term visions with eco-friendly strategic actions in urban and fringe areas

She stresses the need for healthy socio-spatial, resilient cities to access our regions for equitable development, climate mitigation, and adaptation.

Emerging challenges in fast-moving urban domains, with sensitive environment frameworks on one side, also makes here rethink app-based systems- with complex approaches of technology over our settlements.

A collaborative effort across borders, generations and disciplines, seems are of the way forward approaches for her design. She stresses on need to strengthen and enhance women's leadership recognition, roles, and contributions in planning processes.

**Ar. MANGUESH R PRABHUGAONKER** along with a B Arch degree has a Masters post-graduate degree in Landscape Architecture from SPA New Delhi and is a Fellow Member of IIA, ISOLA, and an Associate Member of IIID. He is a National Council Member of the National Council of The Indian Institute of Architects. He is also an Expert member of the Goa state Wetland Authority and a Senate Member at the School of Planning &amp; Architecture, New Delhi. He is also a Visiting faculty at Goa College of Architecture.
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**IN MEMORIAM**

# B V DOSHI
# A LEGACY OF HOPE

## Ar. Soumitro Ghosh



Silently moving around on the campus of my alma mater at the Centre for Environmental Planning and Technology, Ahmedabad on the 29th of January 2023 was a time of remembering my teacher, my friend, my mentor and more. With whom I would share much of my works to have his views on the directions of our thought and work. I had come here to just be in the School of Architecture building at the CEPT campus, with many memories of him and this seminal work.

This 29th morning, an overcast day with drizzles in between was the prayer meet at Sangath, Doshi's place of work, B V Doshi, an internationally known architect from India. In the tube rose decorated quieter than ever before ambience of Sangath, it was 'Celebrating Life'. People from all walks of life and associated with Doshi flowed in, in a few thousand. It was a touching moment of dear loss for the family and many many others. People came from near, far and from across borders, because borders never had any meaning for Doshi and never held him back.

As I reflected upon this wonderful life, it was truly about celebrating, because this moment of loss on 24th January 2023 would still not take away Doshi's spirit. During the years that I came to know him closely, from 1989 onwards, it only increased my appreciation and connection with him, in spite of me having moved to Bangalore in 1995.

Every time Doshi was in Bangalore he would call a day earlier to book the next day/s to be with him and he wanted to see all that we had been doing since the last visit. The engagement with these projects was a time of unusual insights. And every time in Ahmedabad, his doors and arms were always open to see him and spend hours talking to him. He made time for the unknown bond we shared.

For Doshi learning was never enough. The world was but a place where winds could be from anywhere and to somewhere. Always with a little sketchbook in his jacket pocket / short pocket, making notes and drawings even during student reviews, absorbing, imagining and making a repository of paths others were traversing and where they had gone and could go. CEPT juries were an event to wait for, with him they were like 'jugalbandi' with other reviewers, where ideas with potential were unfolded and projected.

The vulnerability came naturally to Doshi, an honest acceptance of what he did not know or was unsure of, at that moment. An acceptance of another time and day when he would know better about the earlier questions and new ones that would replace them. This percolated the faculty at CEPT among the teaching and the students hungry to learn.

A personality of humility and unabashed equality with students and colleagues alike; anyone in the pursuit of learning, knowledge, and wisdom. He was in search of an architecture of empathy and connection to people beyond the call of the client brief, enriched for experience, meeting others and for its sheer joy. His was a life that encouraged and enabled the individual voices for a society that would be liberating and driven by ideals, un-selfish and generous.

On the 31st of January, with the family of one of Doshi's closest friends from Switzerland, we visited the Indian Institute of Management, Bangalore, to remember him. It began to sink in, the porosity, precise geometry and how it could still be non-deterministic, how the body of the building could extend itself to create an urbanity, the list of learning went on. Ease that transcended time and place for an experience of community and individuality with immense grace. The building now lost among the green was a shelter that crossed imaginary borders of time and place. It was just joyful to see the celebration of life in an architecture of humanism, the stillness of a desired silence, and places of community, both rooted and diverse.

Doshi has created a legacy of hope, hope in blossoms that are to tended to bloom and shared without restraint. Sharing was learning and moving on to more knowledge. Doshi has reinforced faith in the faint unknown beautiful melody, to draw us. The legacy of his values will live, through his engagement with teaching, the founding of CEPT, his works and practice and his journey will be carried through the numerous people whose lives he touched gently and deeply.



**Ar. Soumitro Ghosh** is a partner in Mathew and Ghosh Architects, a partnership founded by Nisha Mathew in 1995. Educated at the School of Architecture, CEPT Ahmedabad, he has earlier worked with Pritzker Laureate B.V. Doshi, R.J. Vasavada, Neelkanth Chaaya, K B Jain, and others before beginning this collaborative multidirectional practice.

The practice covers a wide spectrum and ranges from projects and ideas to do with the urban environment, sustainability, architecture, space, interiors, product design, and so on. Some of the executed projects include urban/people parks and memorials, hospitality-focused projects, conservation, industrial facilities, corporate offices, religious and residential buildings, exhibition design, interiors, furniture, jewellery, art, and installations. He has personal interest lies in crossings of politics, philosophy, culture and history to strive and understand the society we live in and design for.

# BALKRISHNA DOSHI
# THE MAN AND IDEA

**Ar. Christopher Charles Benninger**

This morning Balkrishna Doshi left his body and continued on his journey, leaving us both memories of a man and an IDEA.

I believe very special people are implanted in our memories at birth. So even before the first time we meet them, it is a kind of recollection from our memories! This is true only with a few unique people on this earth, and it was so when I first met Doshi in Ahmedabad in 1968.

When one met Doshi, even over a small matter, there was a glint in his eye, that hinted at something inevitable. It seemed through mere glances and passing smiles that larger concerns were demanded from us, which transcended the petty concerns of the moment. Rather than two people talking, Doshi was dealing with the collective concerns of humanity and thinking about how this little problem is but a sliver, or a sign, of the greater human condition. There was always a sense of vision, of the future, and excitement that we are not dealing with something small or mundane, but that we are unraveling the essence of the universe. The more one came to know Doshi, the more apparent contradictions seem to fall into order and unity. It is within these seeming contradictions, that the essence of Doshi lies. What are these contradictions?

• Doshi was both simple and sophisticated? Doshi told his stories, and he was a great storyteller, in such simple words that his innocence obscured a great sophistication. Each building he described, and each question he answered, was usually analysed through the analogy to a folk narrative, a riddle of life, or was explained through a passage from the epics. His range and grasp of tales belied an underlying encyclopaedic knowledge;

• Doshi was both a traditional Indian and a global man? He lived very simply within the great Indian tradition. Seeing his home one felt that he could be in a relaxed village house lost in some rural place. Yet it was his great understanding of things which made matters appear simple. He brought the reality of things down to their basics making them fundamental yet truly universal and global.

• Doshi was a wise sage yet he thought like a child? Even at age ninety-five, there was a child within Doshi's face; in the way he talked, and in the way he sketched. But behind that child-likeness, that playfulness, was the ageless wisdom of an ancient sage. His truth always presented itself in the simplicity of a child.

• Doshi seemed as free as a bird, yet had the self-discipline to achieve? Doshi always appeared relaxed, free and unfettered, and was not bound to any ideology, or to any "ism"! He seemed almost bindas, or like a free bird, or like a traveler without any destination; knowing only the joy of moving and exploring. Yet, the contradiction: he has labored to start institutions which live on discipline; created buildings that only hard work can bear; and created human relations, which mature over decades of devotion. Doshi was free in his mind, yet a slave to his devotions!

• Lastly, Doshi was a MASTER OF THE SMALL, yet a ponderer of the infinite! If he drew a small bird, it would be in flight; it would be all birds flying in one image; we too were watching it; we felt in flight; and we experienced the transcendental beauty of flight, and the unimaginable! Doshi dealt with the tiny seeds of things, yet in them lay the essence of all things!

There is only one form of good luck in life and that is to have good teachers! Good teachers inspire us! All of us who knew Doshi share the smile of good luck. Doshi made us aware of the GOOD IN OURSELVES, and we always felt very good about that realization! He catalyzed some deep understanding of our essential possibility about who we could be! That is what is known as inspiring.

It is that good, our feeling GOOD, and our knowledge of ourselves that makes us want to celebrate Doshi's life.

The life of any person is a dubious experiment. Life can be fleeting, meaningless and insignificant. It seems so amazing that anything can exist or develop! Yet Doshi's life was an epic journey:

- His boyhood in Pune in the old city;
- His student days at J.J. College of Architecture in Mumbai;
- A brief period in London with the good fortune to meet his guru, Le Corbusier;
- His years in Paris with Le Corbusier;
- His early days in Ahmedabad moving about in the heat on a bicycle to supervise Le Corbusier's buildings;
- His marriage to Kamlaben;
- Founding his studio Vastu Shilpa;
- Starting the School of Architecture at Ahmedabad;
- Work with Luis Kahn at the Indian Institute of Management;
- Wonderful friendships;
- Growing a single School of Architecture into the Centre for Environmental Planning Technology, and then into a university;
- Making great buildings; prizes and awards;
- Surrounded by a loving family;
- International recognition!

Doshi's life was a psychic process that has only partly been revealed and will continue unfolding.

Doshi was two beings inhabiting the same body. One being was the simple man, the friend, the husband, the father, and the architect. Yet there was another Doshi beyond the memories of encounters. There was the Doshi who was the AVATAR of imagination; there was the Doshi who was the manifestation of our dreams; it was like two beings always

walking together; inhabiting the same space; knowing us as a friend, but playing on our spirits like a phantom! On one level Doshi was an object, like a tree, a stone or a mountain or a human being; on another level he remains, even after death, like a morning sunrise bursting over snow clad mountains awaking our inner spirit and making us question who we are. When we were standing next to Doshi we felt there were two beings next to us: One was concerned with the day-to-day matters of life; the other drifting off transcending material being. It was this second personality, this "other persona," which formed a classic myth that carries within it the eternal spirit, which lights up one's imagination; one's inspiration; one's desire to be!

Thus, on this day of Doshi's leaving us, we must consider Doshi's personal myth, which will live forever; it will be a source of continuous celebration and inspiration. We must celebrate it without trying to understand it. We can only tell stories and recall incidents. Whether the stories are true has no bearing, and is of no significance! The only importance is whether we can grasp Doshi's story, and Doshi's TRUTH. The test of a man is in the message of his myth; only his inner vision, which projects out across the vast universe, and is etched into history, can have any meaning!

Every life is the story of the self-realisation of the unconscious. Here Doshi's life was unique. Everything in the unconscious seeks outward manifestation, and Doshi's personality also desired to evolve out of its unconscious condition and experience itself as a whole. Let us not employ the language of science, or the words of measure to trace Doshi's growth, his contribution and his GIFT. Let us celebrate the myth, which we all own; that is part of our being; which now passes as folklore and sets boundaries for all of our imaginations and possibilities.

It is the story of Doshi that allows us to set our own parameters; which has forced us to dream, which asks us to search and to seek again and again, that we can never forget.

I came to India fifty-five years ago in search of a guru; in search of truth, and in search of a believable myth. I was so fortunate to find all of these in one living being, whose spirit still lives amongst us all here today: my guru, our guru, Balkrishna Doshi.

**Ar Christopher Benninger,** Chairman and Principal Architect at CCBA Designs Pvt. Ltd., studied Architecture at Harvard University and City Planning at the Massachusetts Institute of Technology. He has taught in various institutions including the school of planning in Ahmedabad (which he co-founded) and MIT and Harvard. His book Letters to A Young Architect won the Best Architecture Book of the Year Award 2012 and has been translated into various languages. Besides numerous awards, he has won the prestigious IIA award on six occasions.

# B.V. DOSHI-
# A DOCUMENTARY

**Premjit Ramachandran**

At Sangath, ca. 2008



At Sangath, ca. 2019

*B.V. Doshi (BVD):* In the School of Architecture I never took the salary that I got, Rs800, I never took it home, for all those twenty years, when I was at the beginning of my career. It's a temple, how can you do it? How can you take money from the temple?

*Charles Correa,* Architect: I think it's wonderful what Doshi has achieved. That's the best school in India and it started from scratch and it has its educational component and then I think there were people like Bernard Cohn and Rasu Wakil and many others who made huge contributions, but the essential contribution I think was the bridge between Doshi and Kasturbhai Lalbhai and people don't realize how important that is. Without that, that school wouldn't have happened, without Kasturbhai's backing. I mean you have to be a bit of an empire builder and have somebody backing you to do something as marvelous as CEPT. So a lot of the credit absolutely goes to Doshi because regardless of what else happened it's he who was the basic driver of that project.

*Vasudevan Akkitham,* Artist (Son-in-Law): You see there are these three daughters and the son - he's the architecture school, CEPT in some ways. In the sense that you see everything is in a way brought back to that fulcrum or brought back to that centre, epicenter which I think is an orientation of the family in certain ways.

*Graham Morrison,* Architect: People with imagination become prophetic in some ways and they enter into a world where they predict an imaginary future on behalf of the people that they are working with and if you're poetic in your description of what might be, then you can persuade people to enter into tasks way beyond their initial imagination and I can't help feeling that Mr. Doshi is very much out of this mold.

*Anand Sarabhai,* Biologist: He's an architect of ideas.

*Nimish Patel,* Architect: After my parents and grandparents, if an individual has had a role to play in my life it's Doshi.

*Giovanni Leone,* Architect: I've learned from Doshi the way to be yourself. Always.

*Prof. Neelkanth Chhaya,* Dean (School of Architecture, CEPT): He's able to talk to any level of the person. He can talk to a peon or a driver for two hours at a stretch and he can talk to a minister as required and he's aware of all these levels of society. That combined with this rigour I think gave him a certain distinct standing in the way in which he looked at architecture.

*Rahul Mehrotra,* Architect: His ability to kind of intuitively respond to a painting, to visuals, to a landscape, to other architecture, and then to convert those sorts of intuitive
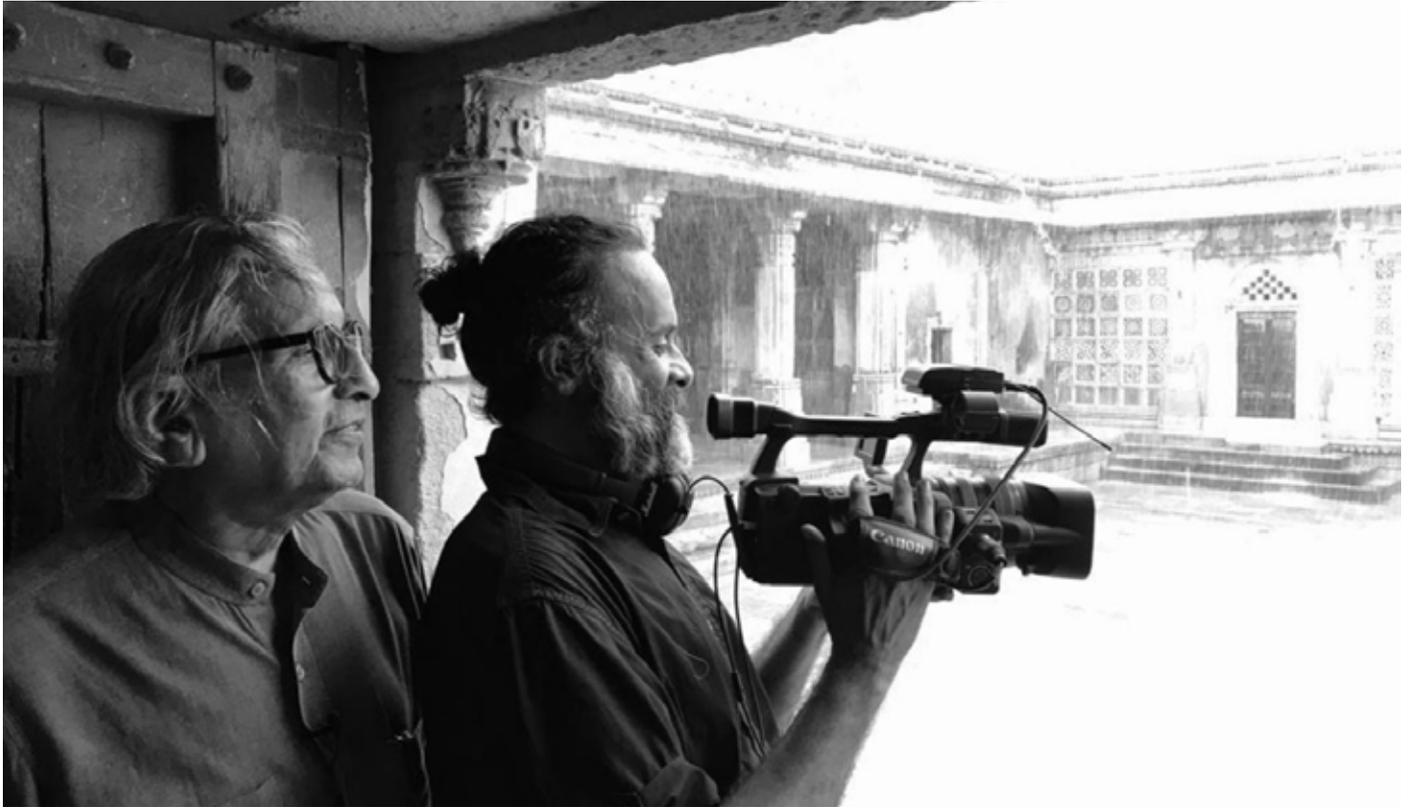
At Sarkhej Roza "then it rained…", ca. 2019 *(Photo: Ruturaj Parikh)*

readings into a narrative that would just engage a young student is absolutely incredible.

*Nagraj Vastarey,* Architect: He is a mark, consciously or unconsciously we need to respond.

*Sen Kapadia,* Architect: The thing about him is that he doesn't carry himself as a persona, he'll just be with somebody. Now, to my mind, a cultured person is one in whose company you feel neither inferior or superior. That is Doshi.

## INSTITUTE OF INDOLOGY
### 1958, Ahmedabad
*BVD:* My career has evolved over time and one of the most significant beginnings was with Indology. Kasturbhai Lalbhai said, 'I have a lot of manuscripts which have come from Jain munis, Jin Vijayji Maharaj and Punya Vijayji Maharaj and they are to be preserved so why don't you do this project'. At that time in '58, I was going abroad. I had got this Graham fellowship with my wife. He said if you're going to the U.S.A. go and see Duke University they have a place for the preservation of manuscripts so please have a look at it.

And I remembered that in Pattan and other places, they were always preserving manuscripts in the basement. So I said it doesn't matter, we will make a basement and then we will make this place. She says that's fine, then it is good, which means one of the first times I mean it is the beginning I began to understand what climate can do.

When the opening was there - there were people standing on the balcony, sadhu's and others. The water was overflowing from the terrace tank, down in the pipe, and came to that gargoyle which you see there on both sides and so it looked really like a boat in the water and this is how this building was

visualized and this was the time it looked like that. So it is not only the shading of the light etc., it is not cooling only but it also became part of the water and the floating area, so if you see the profile on the side you will see the shape - it goes like this, lifted up.

In [Kenzo] Tange's work I found concrete used as wood. I said that's not a bad idea, you know. You should really do concrete like wood and the services can go into the columns, so the 'H' shaped column came, one side drain pipes for the rainwater, other side electricity and then large span and then this structural concrete structure, so that's how this building happened. The first one, I don't think there are many buildings like this where the upper balcony's little pieces are all precast. In fact, the detailing is very much like wood. It is one of the best detailed buildings that way. Very well done you know, in a sense, it has a quality that is very different. It stands apart.

## CHAPTER 1
### 8 months with olives and cheese
*BVD:* I was new, I had no background, I was with my wife, why you know, you talk about the museum building [Sanskar Kendra, Le Corbusier, Ahmedabad] when we were supervising one Mr. Kenny from Bombay, the engineer, said this cavity wall cannot be built like this. So he said why don't you change it to load bearing wall, I refused. So the Khaatawaala, the engineer said why don't you call Mr. Doshi he called me, and I said no I don't think I would like to change that plan, you can't change it. So then they says well then we will get somebody else, then I said I'll resign. I resigned from the job which was giving me Rs.250 or Rs.400 per month. I had already completed two jobs, I was only getting Rs.150, Rs.65 was rent, I had Colitis and had to go to Bombay and get doctor's medicine, I had no money to live. So, practice starts like this. I used to bicycle for almost 18 to 20 kilometers minimum. From there to

At Institute of Indology, ca. 2008 *(Photo: Bijoy Ramachandran)*

Shahibaug to come back to Mill Owner's, go to the museum, Shodhan House and back home, everyday. So difficulties were there. When you have a role model you have a problem, you have comparisons then you have a problem when you think that this is the only way you can survive then you have a problem. And when I went to Paris, Corbusier did not pay me for eight months. And I had hardly any money. I had very little money. I went against my brother's wish to Paris, I was not able to speak. Eight months with olive and cheese… and bread, that's all. Crying. So this is how the practice was I was having Colitis at that time, and I was having pain. But something had happened, and I still don't know what it is. And that's what keeps me going even today. This idea, that no I have to do something which is right you know. What happens if he [Le Corbusier] asks me a question. You see Corbusier told me once which I think is important that remember there is somebody standing behind you who is better than you and you are answerable to him.

## SHREYAS SCHOOL
*1960, Ahmedabad*
*Charles Correa,* Architect: I think Ahmedabad was special because it had a number of people there who wanted to do something - what is called on the cutting edge. That's very important for a young architect and that's gone out of Ahmedabad. It's a very commercial city that was always there.

Ahmedabad is basically about buying and selling whether it's Corbusier or whether it's Post-Modernism but there are people there who understood the genuine thing. I think of course of Kasturbhai Lalbhai, I think of Gautam and Geera Sarabhai. These were people who brought the world's best to Ahmedabad. That didn't happen in Bombay. So Ahmedabad was a very good place to grow I think. There was Kanvinde, Doshi, myself, there's Raje who's still there and then later on Raj Rewal in Delhi and so there were a number of Indian architects who I think did exceptional…I mean, tried pretty hard but we had exceptional clients.

*BVD:* Shreyas was my first project and Leenaben, whom you met, she's a remarkable woman of capacities. She had started a school near Sha hibaug. One day she and Anand's [Sarabhai] mother Manorama Sarabhai, were working together in the school, so they said, "Why don't you do a campus for us we have this place you know"- they had acquired 30 acres on a hill. So I said, "Sure I'll do it". It was my first job and incidentally, her husband Madan Mohan (Bachubhai) was there when the estimate came to something like 8 lacs for the whole campus he said, "But, Leena you think you know can afford this, you know? Can it ever happen?". So suddenly she shook her head, the hair came out you know, she took out the thing, you know, the band? And the hair came like Durga you know? She said, "Do you think I am wearing bangles", she removed the bangles, she said, "I'll get it done". That is the spirit of this lady.

So she talked about Maria Montessori and education and landscape and size and systems. I saw her earlier one without corridors - I said why should we make buildings with corridors? I said, shouldn't children walk from one class to the other even after the break rather than the teacher going there? And while they get out of the class they look at birds and they look at snakes and animals, insects, clouds, rain. And that will give them a chance also to recapitulate. So she says that's what I want to do. Now that's what she was talking also. So I think that made these clusters. And then there was a question of how do you have a building typology where children are young, by the time they go to matric they almost become five feet tall and the teacher who is already tall. So how do you create a scale in a building where the small and the grown-ups simultaneously will feel comfortable? And then the next question was ventilation? So how do you get cross-ventilation, so those storage cupboards are there and there are louvers below and above.

*Leena Mangaldas (nee Sarabhai),* Founder/Principal: He was young I think about twenty-five and I told him about our idea and he very earnestly took it up. Then Doshi saw this place and he said he'll see the old place also and see how we work. So every place the activity rooms, the laboratories, the library then the kitchen than the dining place all that he saw. And he said he will see how we are working and on that basis, he will build this new building. And we didn't want children to learn from books and sit in rooms and give examinations. We wanted to them to be free.

Doshi: So there was a valley and so we said we will do an amphitheater there. I said I'll make it like a Greek one. Then she says I'll make the curtain you know with water and at the back is the art school so that you can use [it] as a backdrop and also like a big theatre. She incidentally writes and directs

also. Big shows there used to be - full of kids and everybody. It was so good to see. Rarely do you see something like it.

## CHAPTER 2
*Indian plan is not centric*

*BVD:* India has always survived and celebrated via frugal-ness and very intelligent ways of using everything to the best for example this *dhoti* -it is completely half naked, no? But it is a clothing which has a great style and it gives you all the air and whatnot. Look at Indian clothing. How comfortable it is, more comfortable than even the Japanese, you know, because it works with climate, etc. Now, look at the turban and a *dhothi.* And you go to the well and you can take out that long thing and you can take a little pot and go down and drink the water. Or you spread it at night or you cover yourself. How many ways you can use it? And I think this is Indianness. Indianness is ingeniously finding several ways of using the same thing very efficiently.

The *lota* which Charles Eames talks so much about, I think it is all Indian. Now, that is the Indian mind. The Indian mind is ingenious. Indian mind says, "if I can do this, can I do something else?". That is where we get confused also. But they will always say one plus not just one. In everything. Look at mathematics, look at language, look at everything else. There's always something added. Now that something added is that extra joy and I think that is where the ingenuity is seen.

The music you look at it. Why do you know it should be compared with jazz only and why not like this. How is it that it's time-bound but in a time bound each gharana can sing differently. Same notes but you can play differently. Theatre, that whole theatre with Ram-Lila you are going in a cross like this, in four places, you find a king here and an ordinary fellow here and ministers here and public here and you go in time and space over a long time. You can do it in twenty minutes, you can do it in two months. How come? And you are formally separate but informally you are close by. It's not centric. The Greek theatre is centric, you know, focussed. Indian plan is not centric.

## SANGATH
*1958, Ahmedabad*

*BVD:* The whole idea is [that] if it is a sustainable building it should use everything which is available from almost waste. And all this is done by the local people. I told them just do what you like, I gave them pieces, so… this is Amitabh Bachchan for them. So this is where you enter. Very small inconspicuous entrance. Not a royal entrance no portico, nothing. A little courtyard. It's like a domestic entrance. And the entrance here is even like that you know? It's very simple. I was thinking why should an office be like an office? Why should I not only have an office only for myself and close at five? Why can't it become a public space? So you are talking about public and private, form versus formlessness, growth and other things and yet it has to be a studio. And then you talk about partly above, partly below ground. All this happened.

I think now you can shoot my granddaughter. Let us see my darling daughter.

I had made this building by chance the extension. The building happened because I had to make this into non-agricultural land. And so I had to find something. So the neighbor had only curved sheets. So I said overnight let me take the curved sheets and make a plan. So I made a plan and I made the roof and I got my stamp. But then I said, 'My God how nice this? ' So always there are clues. We must be aware to use them.

So you get the sense of all these spaces. And this building inserts into this. As if this building is going in. It moves like this. And this is, you can see, the old sample. And it is north-south. And then I had a very big garden here. And again this is against *vastu.* This is west. And this is south. So one *vastu* chap came here and he saw this he said, "You are going to have some trouble". I said, "No". He said, "You never had any problem?" I said, "No, in fact, I have been successful". After a month he comes back and says, "You are right. This is where Dhirubhai Ambani's entrance is". This is *vastu.*

I said, "Why don't I make a village and that's what I like, a tree, a garden, the steps". And that's how it began to happen. Then one day I made those arches and then came everything. And again it has all the waste products, it has china mosaic which was never used before, it has [Antoni] Gaudi, it has [Frank Lloyd] Wright, it has this, everything is there. It is like good food that you enjoy which is done by the best chefs, but you are the one who is digesting this and you have to convert it into your blood and your life and what I do is only follow this biological order. Borrow everything and finally become yourself. And that Gandhji's idea that looks open the windows but sees that your roof is not blown off. Your foundations have to be strong. So you have to be deep inside an Indian who is frugal, who can invent, who can take a chance, and who can starve.

There's a student here from Stuttgart, you know, who is working here. And I was talking to her about Indianness and she mentioned something very interesting. She says you know Indianness is in riding in the bus or in the train. In the train, there are no windows that are closed. You are on a journey and the air is flowing all the time, everywhere and you are partly inside and partly outside. I think that is India. And not only this way, but physically, and philosophically also we are very ambiguous - more or less, I may come I may not come.

## CHAPTER 3
*Ritual is another fascination that I have been having since childhood*

*BVD:* One of the essential Hindu philosophy is the rasa. I think the rasa theory is the one that is correct. Like when you eat food and when you go to somebody's house and then your friend says how was the meal. You don't say the soup was good or this was good, you say I think it was wonderful, you know, I'm so happy and I'm content. And then you burp maybe, you know. In Indian style. I think when you say that because that is enough to suggest that you are really content, contented no? So this contentment do we really express in our buildings or in our work?

## INDIAN INSTITUTE OF MANAGEMENT
*1977, Bangalore*

*Graham Morrison,* Architect: You can imagine the Management Institute that has no powerful sort of symmetrical axis. It feels much more like an organism. That it would grow in a natural way, just as an organism would, through pre-determined values and rules very much the way the body would grow

and change and age according to pre-determined principles. The little that I know about Doshi's past, inside that man is a sensibility, that combines heroism with modesty. You know, you can't help feeling that he truly cares, he has a deep sensibility for the people that might live or work or occupy a building. He's thinking about the humanity of the problem rather than the grandeur of his own ego.

*BVD:* So Ramaswamy says, "I'm interested in small-scale people. So I want this made, you know, for small scale, and therefore the buildings have to be such that everybody feels at home and not really awed by buildings". I said, "I will make this place gardens". And I told Ramaswamy that we should have buildings..in fact, the board I met…I said I will only make three storied buildings so that they are in stone and eventually they will disappear. So one of them says but when they disappear you mean there will be no architecture. I said more or less no architecture but you will experience what you experience in Madurai temple. Then they kept quiet See reference helps that time. Because they cannot say Madurai temple is not good. So, even as an architect you have to be very quick, you know, in answering them.

I made the drawing. I forget the name of the very nice person who was there, an administrative officer. I made a drawing and now you have to approve the budget. So, a pergola is between the two buildings and there is only a column structure. So basically it is an empty corridor. So I calculated all the areas and then I got the budget approved. But the plan showed the pergola. So when the building started working, the man says you know…I should remember his name, he says, "Why are you worried? It is approved in the plan, no? So you show it as approved in the plan and go ahead". So it happened.

*Graham Morrison:* If you look at Mies's [van der Rohe] work or Corb's [Le Corbusier] work or [Alvar] Aalto's early work - actually their training is neo-classical and it's all about composition - the creation of compositional space. And, I know Doshi is obviously much younger than that but you can't help feeling that his training gave him an understanding of the nature of composition but also the benefit of history so that you feel his work is reaching back into our sensibility not only about how things combine, to where the whole is greater than the sum of its parts, but also recalling space and material and simplicity that takes us back into eras before modernism. So we connect with things that are so timeless and they have a gravitas and significance that is much greater than us as simple individuals today.

*BVD:* Actually, if you really go back to your childhood and think about the childhood and say that "this is how I've enjoyed my life when I was always wanting to be outside with my friends". And then this Kanade was saying that "I don't remember my college days; I remember my school days". The reason is, there are no places given at higher education as the child will use. And if that is done… I mean what is there to do? You just pave this, make from here the steps, and make a little table. That's all you need. These trees are already there. Because suddenly, if they see from top, they will gather and look down and I'm sure a fellow who wants to play guitar or they want to have a jam session or they want to have two people and they want to listen to some music. Why can't they come out here?

*Graham Morrison:* The last thing I would say with my consciousness about our visit to the Management Institute, was the breathtaking simplicity with which everything was achieved that I, sort of, call it architecture without adjectives. So, our visit was humbling - to come across this building that did everything that we could ever want to do in a building ourselves, and yet, here it had been done decades before and we hadn't really experienced it.

*BVD:* I was supposed to go and teach in Colombo, I mean, [be an] examiner for Colombo. And I tell my wife, "Let's go to Colombo". Now we land in Madras. Srivatsan was staying there, so we stay with him and I said "I want to go to Colombo, how do I go?". He said, "But, do you have a visa?" I said, "No, do you need to have a visa"? He said, "Of course". I said, "What do I do now?". And about a week was there - only four, five days. So, I went to the embassy there and they said, "No, you can't, you have to get to Delhi and all that". So after three days, they say, "You can't get it". So, what do I do? I forgot to inform them that I am delayed or I have no visas. Then I tell them, "Why don't I go to Madurai and other places. So, my wife and myself made two weeks of the trip. In between so many calls came from Sri Lanka, I mean, Colombo to here and back and forth. And they did not know where we were and that was the best period - I saw Madurai temple and the other things there Tanjore and others. I found proportions, rhythm, light and the same structure but with variations. And you see these columns going up and courtyards. And one discovers this. But you're also observing - I'm observing people there and some people are sad, some are happy. Some people transform themselves and you see people rolling, you know, Guruvayoor and others - you see all kinds of ritual. So ritual is another fascination that I have been having since childhood. Mahabharat, Ramayan - see these are all useful things because when you go back and you see these images you ask questions - why the images are there? Why it is like this? Uncertainty, I discovered here - that incremental growth and growth which is not proper. And then in the school I can only build that much, but I had made a master plan. So, all these things came from these understandings of Indian life.

## CHAPTER 4
### You are God's representative on Earth
*BVD:* Consider every building that you do as a temple for God. Now imagine this concept. If you are doing a house – a small house and now you are given this idea that this is a temple of God - would you think miserably? Would you think at all miserably? No! You will say the man is poor but it is his temple so I have to find a way by which it gives him heightened experience. You represent this God, so you are an emissary of that man so you cannot see that he is abused by your mistake. Nobody actually likes misery, no! We make it misery because we are miserable. We are ordinary, so we give ordinary. Now if you think that you are representing God. One is the temple for God now you are representing God. Would you try to be less generous? Would you do something as a representative of God you say, "I cannot do"? or "My circumstances are not allowing"? Because there is no circumstance left. For God there is no wrong circumstance so God will play the game.

## LIC HOUSING
### 1973, Ahmedabad
*BVD:* Housing, I have observed that whatever I was doing was company townships. So they were restricted, then

people would retire. But I remember my childhood and my grandfather's house where it was always added on. And I saw also a lot of housing by the housing board and others eventually they would cover the balconies they would add extras, you know. So everybody was doing this addition and I wondered [that] those additions in the old city did not destroy the architecture at all and yet they had all the things there to live for generations?

*Amrish Thakker,* Resident: The people are very nice over here and you know there is a lot of breezes. The green plantation is there and you know, my grandmother is there, my brother is there.. The entire family is good. Open space - that is the best thing about it, open space - it's a wide spectrum.

*BVD:* So I was wondering, I said if these people are going to be there is there no way that we can make a new kind of plan, where growth can take place and certain things will remain constant? So that has been my concern because I remember Jaisalmer, I remember Udaipur, I remember old towns here and I say that this is something that we don't talk about as architecture. Primarily, I don't believe in formal buildings, I believe in formal buildings, slightly modified. So additions, modifications, and changes become very important.

*Amrish Thakker:* My Uncle, Sharath Thakker was an architect from the school of architecture. So, he told me that B.V. Doshi is considered to be one of the best in Asia.

*BVD:* I knew one thing people normally don't change is the staircase and landings because they belong to everybody. Staircases, actually add to connecting the city otherwise the margin and the setback mean you're too far away. When you land, you land near the road so extending your arm is like shaking hands. So the building shakes hands and yet there is privacy because the distance is quite big between the two houses. If you had no staircase the houses would have come very close.

*Amrish Thakker:* Actually I use only one room and that is this (balcony). This is my block. So I come at night here, over here. I sleep here, I switch on the TV from here. So, an open drive-in theatre is here. So, I sit here and you know I watch TV at night. In the morning I do a little bit of exercise and then I go down. If somebody requires [accommodation] we give them without any rent. If somebody tells me that you know that there is a marriage of my daughter and we need a house for our guest we give them. We do not charge anything. If some student comes and asks, "I want to study for one year" then from morning to evening we give it to him. "You can read, you can make it clean, no problem". So you can sit here for hours together and you do not need anything else. Just sit here, get your newspapers and read them and see the people.

Second Resident: My elder son saw this society and liked it a lot and said we should move here. So, I sold my big house and moved here and I like it so much here that even if I step out of the house for a stroll I feel like I have been out and about.

*BVD:* I say, now I will make different colors so that they will not like some colors and they will change even colors. So, it will begin with changing of colors because in my other townships in Baroda and others they had changed colors from bright colors to these ice cream blue and white and all kinds



At Melkote with Radhika Doshi, ca. 2008 *(Photo: Bijoy Ramachandran)*

of things were there. I said, well, let's see what happens. The reason is I have said, life has to be lived, it is not supposed to be regulated and they must enjoy it. Slowly they began to go on adding, and adjusting - that means they learnt to live, they learnt to negotiate exactly like an old city. And I think from that point of view it's a very important social phenomenon -that only five percent or less than five percent of people have changed hands. That means that our social moorings, as architects if you want to think, that we must really look at housing as a place where the communities can continue to thrive over generations because they have the house as part of them accommodating their life and changes.

## CHAPTER 5
*The end product is not as exciting as the process.*
BVD: Husain. I'm very glad that he mentioned that the process is important. The end result is of no consequence because he is highly part of the Indian philosophy here. He is from here so he can only think about the process. Other people think of the end result but actually, the end product is not as exciting as the process is. How will you enjoy the food if you were not aware of how it was cooked, how everything was brought together and put together and done? I think this is very important but we never have time for this We are actually interested in conclusions - a summary of notes.

## AMDAVAD NI GUFA
*1991, Ahmedabad.*
*BVD:* In Gunwanthbhai's house Husain used to come often and one day we met and he said, "Oh, it's so hot here. How do you manage? How do you build these houses? Don't they get heated up"? I said they can be made underground as well - it's possible. That was long back. Then 25 years later he comes back again. I used to meet him often. Then he said, "I have done a gallery in Hyderabad and Calcutta. Now I want to build a gallery here". And so I said finding a place shouldn't be a problem. So, we saw the thing and then, as usual, he had a press conference and he said I am going to make a gallery here. So I said, "Why to make a gallery? Let's create something underground". So he said, "That's a good idea, let's make a cave". But, I said, "I am going to challenge you - you can't paint, you will have to invent something. You can only invent because you have the ability to invent. I am going to challenge myself and I challenge you". And this is how started an idea of a gufa.

*M.F. Husain,* Artist: When everything was complete then I said these outer surfaces look beautiful, but, there must be something. Why not have a snake - make it more sensuous. They (the domes) are like the breasts of the earth -let a snake entwine them. So I got up and I drew just freehand like that without showing the face - the snake. Otherwise, it would just be a pretty thing.

*BVD:* When I made the model, I shook the model - I said I don't like going straight. So the thrust changed, then it was designed on the computer. So (for the) first time in my life or anywhere as I know a completely sustainable building. These are saucers. Black saucers I got made - ten thousand for cobra. So the myth became here an integrated part of the whole story.

*Prof. Neelkanth Chhaya,* Dean (School of Architecture, CEPT): His own personal experiences would have also, I think, contributed as he was constantly traveling, constantly sketching, and looking at places in India and abroad. This is a very open-minded approach to architecture whether it is in India or elsewhere. But whatever he was impressed and inspired by somehow remained as something in his memory which affected a lot of the work later. So we can see from the late seventies onwards Doshi trying to create a distinctive language that takes the best of both his masters but is his own. Sen Kapadia, Architect: Now this architecture particularly, I was telling Doshi, this is a miracle and why is it not repeating and he said, "it's just because it a miracle - because you must get a client and a function that is not defined". You know, the function is not defined there - it's a gallery to meditate. Now galleries you just go to see things but here in this gallery you can meditate on things.

*Navnath Kanade,* Architect: You know, if you meet a person there are various ways you can greet the person - you may shake hands, you will say Namaskara or you may embrace. So in his buildings, you find all these three phenomena. See the Indology building. It has a landscape and it just stands out there. I say it does Namaskara. See IIM here - it virtually shakes hands. See the landscape and the building - they just meet each other and again go back. It (the landscape) doesn't enter but if you see Sangath and particularly the Gufa, I think this building is completely rooted, rooted into the ground and virtually it is like a tree - it is drawing its nourishment from inside, you know, it's just going up. That is like embracing, I mean that building shows tremendous intimacy. It is a virtual marriage between the land and the building. It doesn't mean one is better than the other, these are three ways of meeting friends, you know - we can greet in various ways.

*BVD:* …and then this is like actually the real Varaha avatar. Varaha avatar is the one where Vishnu goes down to find the rakshasa because Indira's wife was taken by him. So they will be separate, this goes below, so you get that sense. And this is a very smooth finish - all one material, and this is very rough.

## CHAPTER 6
## Architecture is a matter of transformation

*Jaimini Mehta,* Architect: Doshi's contribution cannot simply be said that he started an institution because then you put that institution at par with any other institution, Shanthiniketan was also there. But this institution was very much rooted

in the time and the place of its making. That is Ahmedabad as it was emerging, and being so close to Ahmedabad and Baroda we suddenly felt that there was a movement of which we wanted to be a part. And I remember my father who was a freedom fighter - he went to jail with Gandhiji, telling us similarly that Gandhi had started a movement that we felt we wanted to be a part of. So you see its that kind of a ..and this was in the fifties and early sixties - not very far from the independence movement.

*BVD:* I am not an architect, that's the problem. For me it's a search - it's only a search, search for that unknown which I have not known, neither I know how it will manifest. That's actually the essence of my work. It begins somewhere, ends somewhere, and in that process I grow and the work grows and we both grow together.

I am a traveler, it's a journey and you don't know the destination. So, if you meet somebody on your journey where the destination is not known, what kind of conversation will there be. Will that be a conversation with a definite plan? No! So he is exploring, and you are exploring.

## CENTER FOR ENVIRONMENTAL PLANNING AND TECHNOLOGY
### 1966, Ahmedabad.
*BVD:* I would like to take you from a path that people are not supposed to travel or don't travel. This is the straight way to go, this is another way to go. The whole idea is - this jungle has been made by us. Before it was all barren. So, we talk about architecture. I think architecture is a matter of transformation - the transformation of all situations into favorable conditions. All these mounds were made by me standing on the rooftop over there.

So, it was not a decision on paper, it was not a decision on program, it was not a decision with material alone, it was not a decision talking about climate, it was also a decision with people, their behavior and their attitudes all tied up in a spatial way.

I had shifted this canteen from here to a little away and I found audio-visual connection becomes very important. How you see. I brought it back. So architecture is also the connection between audio and visual, both.

Whenever I work, I become that. I had become a student - a good student and a mischievous student. I was a bad teacher and a good teacher. I was a lazy fellow. So in everything I have played at two ends. You come back and you design a school here and you say, you are director, you have to build, you have to teach and the teachers here maybe there or may not be there. How do you catch hold of a teacher? He must be visible. So, you can stand in the balcony and call him. And that main space becomes where everybody gathers and goes and then, you know, you look at Indian movies and you say I want the staircase so children

can play. So, that's my childhood when you play around the tree, no? So, here they can go like this and come back. So, there are one and two. When you make a shape like this then suddenly the lower basement changes so those things began to happen and then I said, I will have no doors. In fact, if you go there in that concrete there's a cut. There were supposed to

Stills from the film

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be two doors. I said why to keep a door at all. We don't need a door because in St. Louis I wrote, architecture is to open doors not one but many and now I am in presence of Kahn. Kahn has come here to design  IIM and I was drawing the school of architecture campus and he looks at that drawing in the office and he says, "But, am I not supposed to do this building that you called me for?" I said, No, you are going to do this big campus and that is why I called you". Because he did not sign the papers, I  signed on his behalf and I wrote back also on Kasturbhai's behalf. I was working on both ends.

When he was there he talked about precision, you know, reduction of vagueness. So, how do you do a classroom? A studio? So, there are many sketches of Corbusier's about the studio - you want to get north light and south breeze. So, the climate is there already. You have a structure but when you make an angle, how do you make an angle? And I was thinking of Kahn, so, I was then influenced by Kahn on the structural clarity but the articulation is Corbusier's. It's a marriage between them. That staircase is Corbusier, the gargoyle is Corbusier, the concreted and brick is  Corbusier, but the attitude is Kahn's. You know, it's very interesting. I have no compunction - I used to draw like Corbusier, a sign like him. When I  was with Kahn, in his office, I was drawing, trying to draw like Kahn. Why not? You are enacting, no? You do this, you know, so I do that. So, you have to know how to fuse…

*Charles Correa,* Architect: Corbusier was very, very important but I think frankly a distance from Corbusier is also very important or whether it's Corbusier or Kahn or Frank Lloyd Wright or Mies, it seems to me. If you listen to Bach, Bach learned everything he knew at the beginning, as a child by transcribing. He transcribed earlier great composers. Later on, he became Bach because he could distance himself from that. In fact,

there's a famous story that his uncle was so angry with him because at night he used to climb up and transcribe. He wasn't allowed to play these complicated pieces and he tore up the book and punished the child and this Wanda Landowska, who was a great harpsichordist, she said  "Too late". In the very act of transcribing the child had learnt everything he needed to know about that music. Like the roots of a tree gather all the water and the soil. So you know it's very important to learn that and move on.

*BVD:* I remember Picasso, he looked at everybody's drawings but in the end, he transformed them totally. So, I said I am a damn good fellow in copying, I can now change beyond and do something else. So, this is how I did.

*Nimish Patel,* Architect: Every single student of this school in the first eight or ten years had a bond with Doshi that I have not seen in a student-teacher relationship. I would not be totally wrong if I would say that in the first five to six years he knew every student and his father's name and what his father was doing. And those parents would call him at twelve at night saying their child has not returned and Doshi would go to the school and find him and if he is not in the school, he would send somebody to find that person. So there's no surprise that we all felt like we were his children - so that he never differentiated. His family was much larger than his family and I think if we have to really look at Doshi, and I look at Doshi, and everybody talks about him as an architect and assesses him as an architect, his architectural work, I find that architecture, from my eyes, is a part of him but not a significant part as what Doshi as a whole is, that as a human being, as a teacher, both are to me as important as his architecture and his contribution in both these other fields is so enormous and which will never be judged other than by people like us who would revere him whether we either agree or disagree with him but he is on a pedestal for us as a teacher and as a human being.

## CHAPTER 7
*Human being, by nature, is a compassionate, lovable animal. Highly sophisticated.*

## KAMALA HOUSE
### 1959, Ahmedabad
*Nimish Patel,* Architect: I have not seen anything more closely than his house and I have seen it for the last 42 years - change, adapt, readapt,  alter. And there are some constants in that house that have a quality of timelessness that you can't really find in most projects, not just his, but most projects of contemporary Indian architecture.

*BVD:* My mother-in-law was with us for thirty-eight years. So many things I learned from her - humility, and simplicity. Very simple life. When she came here and when she lived with us everything was with her, the keys, but when she passed away, in the cupboard there was nothing of hers. There was only one small suitcase, black, with five sarees and five blouses and five underwear. She was fantastic. So one learns you know all the time. I think that's what makes the family.

This is an Indian way of sitting and there is storage here and then this is the tray. So, this is what it is. So, I squat here. I mean, I sit like this always, I enjoy doing this so I have Indian style and other people have the western style so it combines both the worlds. If you are here, you are completely private, you see the garden and I am not disturbed by any visitors and

this is really like an Indian jharokha and look at the scales. So, all these overhangs then become very useful elements, they become really multipurpose. The furniture is not projecting out of the wall. People forget that one has to have a very small but very nice place for children from the age of one. It changes their life totally. They become human. They become sensitive. They become compassionate. And they will never hurt anybody and they will be still alive.

*Tejal,* daughter: Whenever there was any exhibition or music concert or anything he used to say just don't go to school, you know, but come and see all these things. I think he's a great, great father.

*Maneesha,* daughter: I mean, he understands the pulse of his children. He knows, whenever we are not in a mood or when we have a mood, he will realize immediately.

*Tejal,* daughter: …And till today, you know, my daughters are married, but till today you know he's always with us. Everyday we talk to him.

*BVD:* These windows actually open like this. So, the advantages are if you are sitting here you get the garden. My children must learn right from childhood to observe trees, birds, and nature. I said, if I can do anything like this nothing is more than that  education. And I learnt from the world but it was also nature of another kind but here they can look at birds and actually it did change their lives.  And then I started doing the house. I had gone to the Graham Foundation and came back and I was thinking about an umbrella. So, I made a  plan with an umbrella and columns, you know, in the middle and a diagonal space and below the kitchen and one room and a big living room and other bedrooms on top.

*Bijoy:* Like a Corbusier plan

*BVD:* Yes that's right, and I said, what is this house? It's not India. So when I went to the brick kiln here to buy some burnt bricks, you know, fire bricks, I saw a women coming with the bricks on her head on the steps and with the little tin holes (that's how Tejal's house got those holes) and  that light came and I saw four columns in front and I saw her coming and I said, my God!

So, these four columns, somebody mentioned, and then I said, my God, you know, this must be my haunting. My haunting is with staircases,  columns and shrines.

Then I discovered the plan and you can see many temples have offsets like this and so I found that I was not at all wrong because I said it's a ques tion of belief. I am throughout guided and so in that guidance somewhere this eternal force comes into being and marks its presence and it's always there somewhere you will find that happening.

*Charles Correa,* Architect: Well I think I'd like to really congratulate Doshi for all that you've done, you know, first of all to the school and all the things we've been discussing, but also to reach eighty years old - that's a great achievement and to do it with all these things thriving, including your children and grandchildren. That's wonderful.

*BVD:* I spend all my time even now and what not. Actually, the credit goes to my wife, mostly. Otherwise, I would be like anybody else you know,  quick money and all that. Thank God, you know, she wanted once upon a time to go to Bombay and we did not go and she doesn't repent anymore…

*Bijoy:* She wanted to go to Bombay?

*BVD:* Yes, in the beginning only, because she belongs to Ahmedabad. But then now she knows Bombay and other places. She says it's not good to go anywhere, it's better to be here - a quiet place. But I'll tell you one thing - Human beings, by nature, is a compassionate, lovable animal, highly sophisticated.

*Kamala Doshi,* wife: Actually Corbusier has played an important part in our meeting. Because of his building, he came to Ahmedabad, to supervise. He was in Chandigarh and he decided to come to supervise this building and my brother was a friend of Shodhan's, you know, and he was a  chemical engineer. My brother introduced me to Doshi and we used to meet very often and then we decided to get married.

*Radhika Doshi Kathpalia,* daughter: You know yesterday my mother was not well and I went straight from the airport to spend a night with them and at eleven o'clock in the night he was doing each and everything for my mother - giving her water, giving her medicine, giving her food. If my mother wears a new sari he notices and he says, "Oh, what a beautiful sari you are wearing. You are looking so beautiful ". He has time for each and everything, for each of us. At every wedding I do I am not bothered about the client. I am bothered about my father. If he says pass, it's pass. If he says fail, it is fail to me. I think we are just blessed to have him. I mean it must be some past life's karma that we are born here.

*Bijoy:* So thanks, Radhika. Thanks for your time. All of us are very fortunate that we get a chance to be with him.

*Radhika Doshi Kathpalia,* daughter: I see hundreds of students feeling so blessed so you can imagine how we must be feeling all the time. I mean it's just fantastic. He would babysit my children if I have a meeting. He would do anything, anything. I am sure other parents also do it but he always had time, you know.  Never went to parties. He would go only where we were invited otherwise everybody was allowed to come to our house. He never left us. Never. I  don't remember ever going to parties without us. Never. One thing which I really remember is all my childhood we would get up with music. Even today I got up with music in the morning. And he would especially put the music when I go to spend the night - the one I like. In the morning he would get up and put on the music. But it's every day we get up with the music. Throughout our life. And I would order him, I would be sleeping, I would say, "Papa put this music", you know, and I  would lie down for half an hour and listen to the music and get up. I mean, really pampered. And people used to say you're spoiling your daughters and he would say love cannot spoil anybody and I have three princesses.

## CHAPTER 8
*So what is our heritage?*

## SARKHEJ ROZA
1451, Ahmedabad
*BVD:* Future and past. I think, if you look at this monument

you always wonder how come these people had these ideas of the scale, the size and even the kind of elaboration, you know. It gives you the joy of working. You come back, and you visit, you touch your hand, you can sit places. How come we don't think about this public realm? We have no public realm at all. We don't talk about people, communities, or communities rejoicing. We don't have urban development at all.

Actually that place there are these steps which go down and they go down to the water.

That's for the elephants to come.

But where are the communities gone? Neighborhoods are not there and not only that but there are no museums. There are no civic spaces. There are no institutions that inspire you. Cultural, social, and economic activities have to be clustered and they become the focus of our development. Then everything will spread.

If you make a developer aware that you are doing this but ten percent of your money, of your space, of your buildings should be made into institutions. But if he says no, we succumb. We are constantly succumbing. He says, "You don't bother about what is going to happen outside my property. I am not bothered about neighbour. You just do me what I want". So we are not professionals at all. We are lachar. We are actually submissive and an architect has even greater responsibility. Then what happens? Parents are not aware, society is not aware, we are not aware, newspapers are not aware and so what are we dependent on? So anybody comes here, we come to these ancient monuments and say this is our heritage. So what shall we say about it, you know. What is our heritage? Present heritage? What have you contributed to contemporary heritage? Show me one example, one example you show me. It's not there. You think architects are not powerful? But because they are not doing this, nobody is listening to them - because they have nothing to do with society at large. See its a beautiful wall. you know the kind of transparency you get from here. You get this plus that plus this… So, eventually, all over the country of India, except such monuments nothing will be there. No trace. We will have only roads, you know, for cars, parking, hawkers because that is how we eat our days, you know, enjoy our celebration, entertainment of cheap type and rooms which are shelters, which may be luxurious but that's all. Because we want to be now alone, isolated, and enjoy yourself and so we don't talk about society. Socially relevant architecture I don't think that we have anymore. I don't mean to say that we cannot have a better house but when you just step out of the house and get into the entrance and go to the street, what kind of street is there? Can my children walk and go in two minutes to a park? Can they see something there and learn and come back? Can the family go there and say, "Oh its wonderful, now I learnt something more today, I enjoyed my time". So what do they do? They go back and they have computer screens, laptops, and television. What do we have on television? When you show these things you show as heritage but that's all. We don't talk about saying all right now gentlemen, here is our new heritage. Not expensive - idea-wise. You think collecting water is expensive? To create with the light and shadow and sun and just show people the play of volumes and sculptures and music going on together and dance. Is it expensive? If things are good people will come and dance. But if they are not there, they won't dance. So we will have a Konark festival, Khajuraho festival, Sarkhej festival. Because we as professionals are so involved in our day-to-day mundane survival we are not at all talking, we are just surviving. We are just surviving. Institution building is gone. Look at the Indian Institute of Architects, look at the Council of Architecture - they are fighting against each other. Doing what? You see the schools and look at the kind of teachers you get. What do you do? And the teachers are talking when the parents are there and the students are there - who is telling what and we only talk about, only say how do we do for a developer today? What can we say? How can you not have glass in the building. Because you're not convinced. If you bring a client here you think he will not like it? And then if you add glass nobody will say but there is something to do with the beauty which comes with the subtle nuances of volumes and surfaces. Look at the skyline. Look at the scales. It's not the big, it's not the monumental, it's not the size at all. Nothing is there talking about.

We just talk about this is the price, this is the value, this is what I do, in this much time.

Presented by
hundred hands

A film by
**Premjit Ramachandran 2008**

Transcribed by
Joseph Alwin
Maya Lakshmanan
Kanika Thomas

**Premjit Ramachandran** (aka Dara Okat) is a musician, filmmaker and graphic designer living in Tiruvannamalai, India. He has been doing graphics, artwork and branding projects for over 15 years now and has worked in the past with companies like OgilvyOne (in Mumbai and Dubai), Landor Associates (in Dubai) and Turquoise Branding (in London). After being disillusioned with the corporate world of commercial graphic design, he decided to explore filmmaking and made his first film in the deserts of Dubai in 2006- "Look Here, Kunigunda" (Official Selection: Rome International Film Festival 2006). After returning from London in 2007 he decided to delve deeper into the cinematic process. In collaboration with his brother Bijoy Ramachandran, they began working on a feature-length video-portrait of Balkrishna Doshi. In 2009, he lived in Wayanad for four months shooting, editing and directing 9 short films on tribal culture, ritualistic temple dances, and other lesser-known folklore of the Malayali Hinterland.

In 2012 he made two documentary films; one on Svaram, a musical instrument workshop and Sound Education and Therapy space in Auroville; and "Colours of Hope" a short documentary film on a free school for under-privileged children in Nagwa, Varanasi. In 2019, ten years after the Doshi project, Bijoy and Premjit meet Doshi again and get a chance to document some more magic, myth and metaphor from the 92-year old Pritzker-laureate, philosopher-poet architect.
premjit.r@gmail.com

DESIGN FEATURE

# THE GENDER
## PARK

**Ar. Vinod P Cyriac & Ar. Anita Choudhuri**

**Fact File**

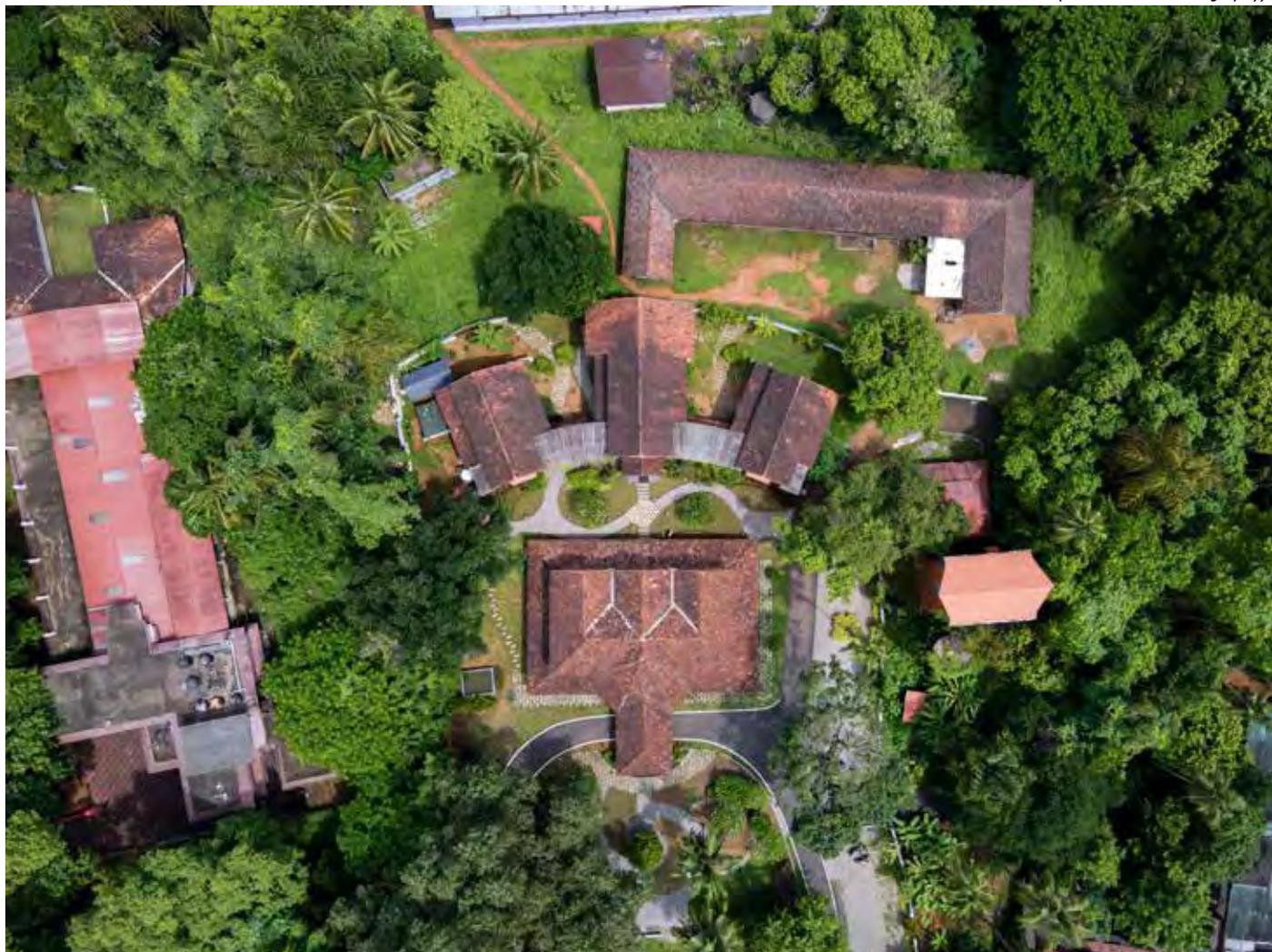| | |
|---|---|
| Firm | ▶ Space**art** |
| Team members | ▶ Ar. Vinod Cyriac, Ar. Anita Choudhuri, Er. Jain, Ms. Akhila, Mr. Gireesh, Er. Dileep |
| Execution team | ▶ ULCCS |
| MEP Consultant | ▶ TECTON |
| Structural Consultant | ▶ Basil Thomas and associates |
| Landscape | ▶ Ar. Amrita and Space**art** |

Aerial view of the Core block and Resource block
*(Photo: Althaf Photography)*

● **Introduction**

● The Gender Park

The Gender Park is an initiative under the Department of Women & Child Development, Govt. of Kerala, (steered in the year 2013) to pioneer inclusive gender equity (female male and trans persons) and empowerment in the state. Headquartered in Thiruvananthapuram, with its main campus set at Kozhikode. The Gender Park is part of the Department of Social justice, Women and Child campus, Velimadukunnu, Kozhikode.

The Gender Park is a platform bringing together gender policy, research, education, and social initiatives.As a part of its vision to encourage research, education, policy, social programs, and intervention, the organization has near completed its center at Kozhikode. The gender Park is the first space of its kind in the world and aims to become the premier convergence point for gender-related activities in the region.

In 2019, the UN Women expressed interest in The Gender Park and its work and suggested collaboration as equal partners, recognizing the potential of the Park. The partnership focuses on positioning The Gender Park and its initiatives on an equal basis.

● Infrastructure
● The Gender Park campus at Kozhikode is sprawled across a 24-acre space.
● A gender-focused Library and Museum at the Core block (Gandhi Block - popular for Gandhi's presence at the location during the freedom struggle). It also has a space for research and policy development.
● A dedicated space for Training for our various educational development and talent-nurturing initiatives and ambitions.
● An International Convention Centre, equipped to host 500+ individuals, with state-of-the-art acoustics and elevator stages for par-excellence performances, along with a number of conference and seminar halls for academic and official purposes.
● An Amphitheatre nestled in a wooded setting for open-air music, dance, theatre and art shows, with a capacity to host 300+ individuals.
● A Green and Accessible Campus, compliant to the Sustainable Development Goals (SDG) by the United Nations.

● Vision
To achieve a just society where all gender identities have equal access to opportunities, resources and benefits with an equal voice in key decision-making that shapes their lives, communities and the state.

Core block(Gandhi block) in the year 2013 *(Photo: Spaceart)*



Core block(Gandhi block) condition in 2013 *(Photo: Spaceart)*



Core block under the process of renovation in the year 2015 *(Photo: Spaceart)*

● Mission
• To garner knowledge par excellence and encourage learning through transformative research, training and knowledge dissemination.
• To create an enabling space to collaborate and develop innovative partnerships to implement sustainable entrepreneurial and business practices.

● **Project details**

● Location
The 24 acres of land owned by the Department of women and child, Government of Kerala in Vellimadukunnu, Kozhikode is flanked by the Kozhikode-Wayanad road in the South and the JDT Educational campus on the West.

● Site
Various facilities catering to Social Welfare and Justice have been allocated in the campus with activities from the late 1960s onwards. A lack of a planned Master plan is very evident as construction has been haphazard and unplanned. The existing activities on the campus before the year 2013 were Juvenile Court, Boys' home, Girls' home, Primary school, short stay home for men and women, Palliative centre, Asha bhavan for differently abled men, Special home for children, Old age home for men and women (the same continues till date ).

The Gender Park campus is located in a highly steep and contoured site. It boasts a rich green heritage. Entering from a lower level, the existing road climbs to a peak point occupied by the children's playground, from where it steeply falls to the other end (the cultural centre is sited there).

The natural vegetation is dense in vacant areas of the site with quite a number of trees and foliage. Big tall trees have been retained on the site, speaking of a rich green heritage. The water source is from a well near the entry and a water collection tank down the slope on the rear side (off campus).

● **Vegetation and foliage coverage**

In this 24-acre campus, along with the building's footprint, there is a large amount of green foliage along the site. This contoured site which has dense vegetation and tall trees is characteristic of the land. The project required providing the space without disrupting the green cover.

Social aspect
The campus consists of many buildings that cater to different people in various age groups with different requirements including children's home for both boys and girls, juvenile court, old age homes etc. Care had to be taken while providing facilities adjacent to sensitive communities so that the functioning of the building was not hindered.

Density building
There were /are 21 buildings that is existing on the campus that are built in close proximity to each other. These buildings were constructed over time then and when the needs of the department were initiated. The state of the buildings varies from being newly constructed to being in a very dilapidated condition. Some of the facilities ceased to function creating vacancies in their building. These vacant buildings can be reused for future facility proposals of the department, preventing the need of constructing new space.
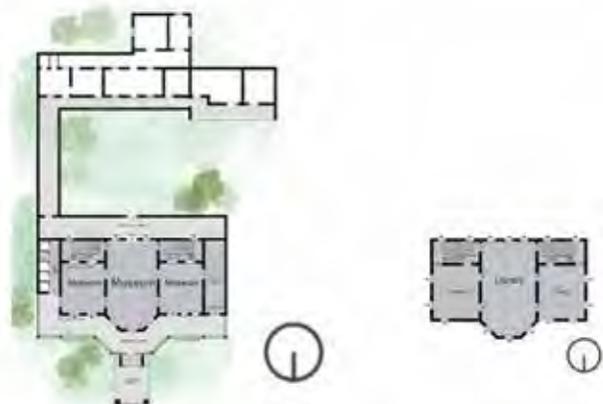


Core block Existing ground floor and first floor plan in the year 2013
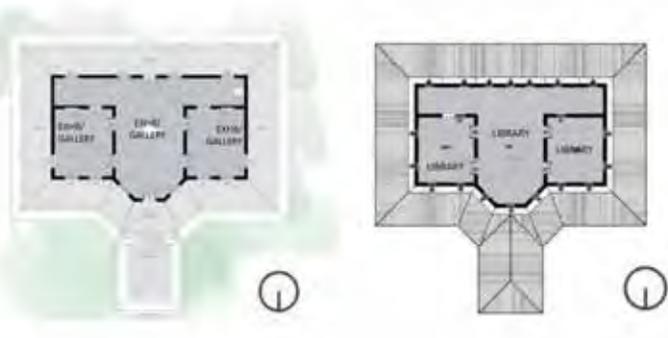


Proposed ground floor and first floor plan of the Core block.
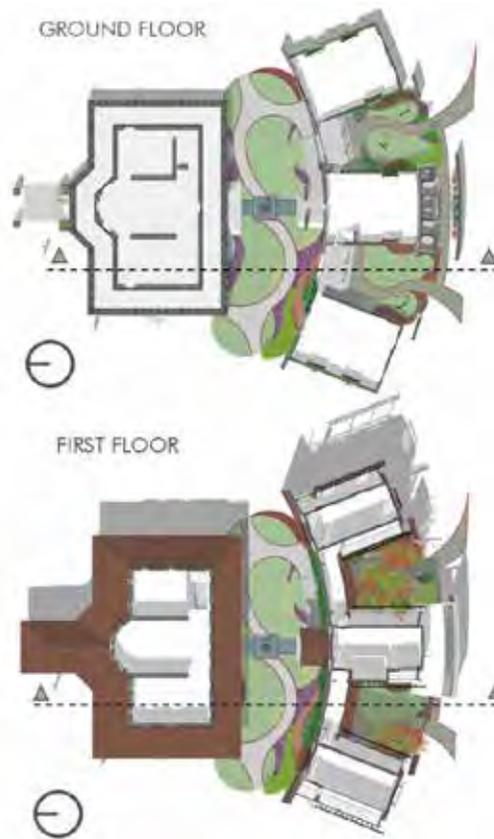


Core block and Resource block Ground floor and first floor plan

Site plan of the Gender park


Phasing masterplan of the Gender park

PHASE I STAGE 2        PHASE I STAGE 1

A view towards core block (Gandhi Block) from the Resource block.
*(Photo: Biju Ibrahim)*



Sevagram        02-06-1942
Vardha C.P.

Bhai Nagjee
You have given a good
donation. Sangh was in
need of such a building. But
I want more from you, this
building is not enough. You
must be doing good
business.

Bapu's Blessings

Gandhi's message to the Nathji family in 1942 *(Photo: Nathji)*

● **Existing site components**

The existing structures on the site being of residential nature as care homes for the geriatric community, legally accommod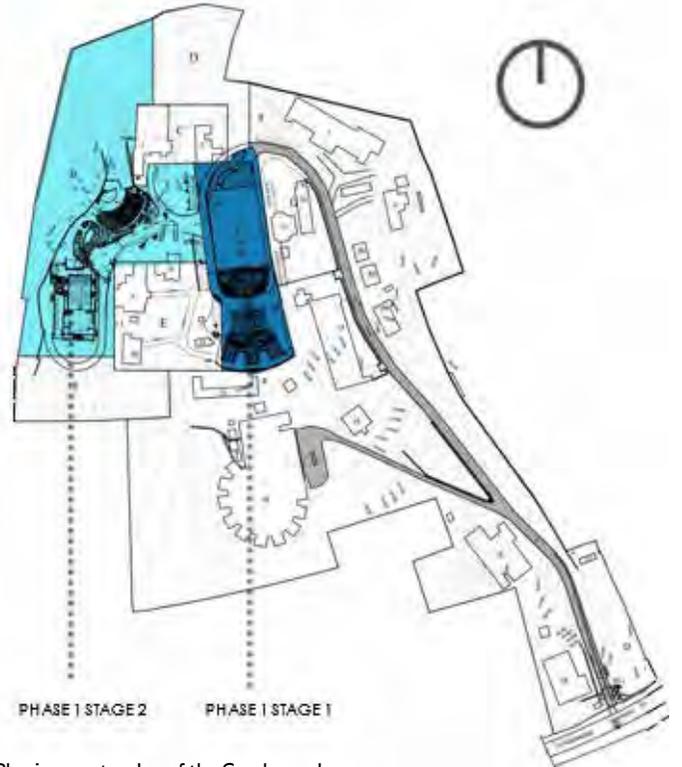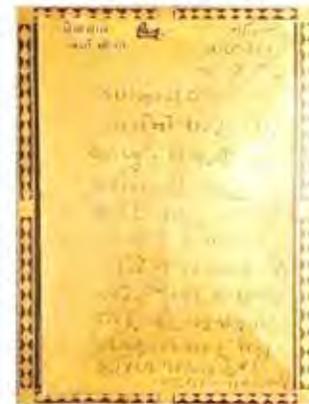ating women, children and the differently abled, spelt the need to build infrastructure for the Gender Park. The present condition of all the existing buildings has been documented- the building typology and occupancy. To begin with, the activities of the Gender Park work were phased into stages.

● **Area mapping of the Projects**

The present campus of The Gender Park houses structures of residential nature for the socially marginalised. For a campus which promotes and initiates activities on gender justice capacity and advocacy a demarcation on the campus was necessitated, however, an inclusive boundary was earmarked.

● Area Mapping of A & B
  • Core Block – Gandhi block  — PHASE – 1 , STAGE-1
  • Resource Block – New block — PHASE – 1, STAGE-1

  • Cultural Centre (includes amphitheatre and seminar halls) PHASE -1-STAGE-2

The plan overleaf demarcates the extent of the land which has the footprint of the Core(Gandhi block) being 1.5 acres –demarcated as A (The area is inclusive of the open Playground) The Cultural Centre, the Amphitheatre and the 4 acres. – demarcated as B.

**SPATIAL NARRATIVES**

As project architects, it was critical to understand and negotiate the social and political connotations, since it was a sensitive and contested environment. The space was to be inclusive for all-female, males and transpersons. The Gender Park could hardly be defined or bracketed in a particular typology, neither could the responses be conventional.

Engagement with the inmates and negotiations with the different stakeholders, over a timeline extending from 2013 to the present day ( 2023 ) have had their share of challenges.

Core block in conversation with resource block. *(Photo: Biju Ibrahim)*

Core block (first floor Library) in 2022 *(Photo: Althaf Photography)*



Core block with Resource block as a backdrop. *(Photo: Biju Ibrahim)*

## CORE BLOCK (GANDHI BLOCK)

This block is an adaptable reuse and forms the anchor of the campus. Gandhiji during his walk for freedom had resided here in 1937 (building dating back to 1922-letter attached). Till 2013 this block was used as the boys' home. In a dilapidated condition in 2013, this building was to be demolished. As project architects over a series of discussions with the Government, it was retained-reuse as the gallery and library were implemented. The Core Block evoked the SPIRIT of the campus.

The damaged roof was repaired salvaging almost 60% of the materials. The verandahs which were enclosed as rooms were opened up and exposed laterite columns were retained. I-sections were introduced to strengthen the structure. The extended L-shaped dining & toilet block was demolished-an addition in the early '70s. The Postal Department of India in 2021 (at the ICGE 2021 inauguration) released a first day cover-a stamp on transpersons with the Core and Resource Block as the backdrop, to kickstart the function.

## RESOURCE BLOCK

As a response to the Core block, this new addition of the Resource Block carried through the requirement of conferences and classrooms. Framed evidently to embrace the CORE Block, the height was deliberately lowered. Hints for material rendering were received from the Core Block -laterite and wood carried through the design. The pitched roof was split and courtyards were introduced. The academic area needed intermediate transition spaces, hence courts at the lower level and corridors at the upper level became the links between the classrooms.

The exposed laterite columns, carry on to the Resource Block as an exposed wall. The trellis in this block has taken hints from the locally visible and available plantain leaf. The perspective of the old through new frames. The spirit of the place has been kept intact. The conversation between the old and the new continued ….( The Core & Resource blocks comprised Stage 1-Phase 1 of the project)

## CULTURAL CENTRE

Convening business meetings and conferences organising exhibitions become crucial for any initiative to flourish. The Gender Park, as per the design brief, has an in-house convention centre with conference rooms of varying capacities to suit business needs and an auditorium to seat over 500+ participants to support the MSME organisations set up by women. It comprises of state of the art meeting rooms, board rooms, exhibition halls and conference facilities.

Built at the lower contours of the site, the cultural centre is camouflaged by the topography and the landscape. This assisted in downscaling the built form.

The site allowed the tucking of seminars, board rooms etc at the lower level. The main auditorium (having a mezzanine) has access at the entry level. Verandahs become the transition between the amphitheatre and the indoor auditorium. The verandahs are replenished with Kerela mural art interpreted as the five elements of Nature. Engagement with artists and sculptors brought cohesion between the art forms and the varied user groups while negotiating the intent.

The project has helped realise/understand spatial transformation by providing infrastructure and opportunities within a project, which would eventually have an impact in the public realm and address issues on equity.

Cultural Centre view through the Amphitheatre area towards the cultural centre *(Photo: Althaf Photography)*

A view of the Cultural centre *(Photo: Althaf Photography)*



Section through the Cultural centre *(Spaceart)*

Cultural centre master plan (Space*art*)



Cultural centre access from Amphitheatre *(Photo: Althaf Photography)*



ICGE 2021 (International Conference on Gender Equity Inauguration at Cultural Centre *(Photo: Ar. Ashin)*



Aerial view of the Amphitheatre. *(Photo: Althaf Photography)*

| THE GENDERPARK | | | | | |
|---|---|---|---|---|---|
| | TYPE OF BUILDING | FACILITIES PROVIDED | CAPACITY | TOTAL BUILTUP AREA | YEAR OF COMPLETION |
| 1 | CORE BLOCK | MUSEUM | 30 - 40 NOS | 556.51 Sqm | 28th FEBRUARY 2016 |
| | | LIBRARY | 30 - 40 NOS | | |
| 2 | RESOURCE BLOCK | LECTURE HALL — 4 Nos | 75-90 NOS each | 658.76 Sq.m | 28th FEBRUARY 2016 |
| | | BOARD ROOM - 01 No | 10 -15 NOS | | |
| 3 | CULTURAL CENTRE | AUDITORIUM | 535 NOS | 2909.10 Sqm | 14th FEBRUARY 2021 |
| | | SEMINAR HALL -2 Nos | 100-120 NOS | | |
| | | SEMINAR HALL -1 No | 50 -100 NOS | | |
| | | BOARD ROOM —1 No | 20 -25 NOS | | |
| 4 | AMPHITHEATRE | OAT— with adequate toilet facilities | 300 NOS | 40 CENTS (approx) | 14th FEBRUARY 2021 |





**Ar. Vinod P Cyriac**          **Ar. Anita Choudhuri**

Drawing deep inspiration and motivation from the timeless philosophy and architectural genius of sustainable building from pioneer architect Laurie Baker, Space**art** was formed to strengthen the professional aspect of sustainable architecture. The journey began in 2001 in Kozhikode, Kerala. Space**art** was founded by architects Vinod P Cyriac and Anita Choudhuri. The firm has completed a number of projects in the private and public realms, emphasizing design integrity and living experience.
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# SUSTAINING
# SUSTAINABLE PRACTICES
## - AN INITIATIVE BY THE NORTHERN CHAPTER, THE INDIAN INSTITUTE OF ARCHITECTS.

**Ar. Archana Khanna**

While the concept of sustainability is a relatively new idea, the movement as a whole has its roots in social justice, conservationism, internationalism and other past movements with rich histories. In its broadest sense, sustainability refers to the ability to maintain or support a process continuously over time, without compromising the ability of future generations to do the same, thereby preventing the depletion of natural or physical resources, so that they will remain available for the longest time. The concept often corresponds to the belief that without major changes to the way we run the planet, it will suffer irreparable damage.

**As concerns about anthropogenic climate change, biodiversity loss, and pollution became more widespread in the mid-twentieth century, the world shifted to embrace sustainable practices and policies, primarily through the implementation of sustainable business practices and increased investments in green technology.**

After decades of effort to raise living standards through industrialization, many countries were still dealing with extreme poverty at the time. It seemed that economic development at the cost of ecological health and social equity did not lead to long-lasting prosperity. It was clear that the world needed to find a way to harmonize ecology with prosperity.

**The Stockholm conference in 1972 on the human environment marked the initiation of global consciousness on sustainability.**

This conference was about the fallout of industrialisation and how to cope with and mitigate its harmful impacts. At the plenary session, Indira Gandhi, India's former prime minister argued: "In poverty, man is threatened by malnutrition and disease, in weakness by war and in richness by the pollution brought about by his own prosperity".

**Prophetic and profound words that the world ignored.**

When the world reconvened much later at Rio de Janeiro, there were new challenges at hand — the rich world had seen the emergence of a hole in the ozone layer caused by chemicals it had consumed in its air-conditioning and other systems, bringing the realisation that no country alone could fix the problem but could possibly jeopardise the interests of all.

**It was also the time when climate change — an issue that haunts us today — had begun to be understood.**

But the rich continued preaching the need for sustainability and the poor demanded their need for development. While the solution lay in finding ways in which humanity would benefit from the careful and conservative use of resources, that did not happen. The problem of rhetoric over action has subsequently been made starkly clear over time.

**While we spent the last three decades engaged in skirmishes, rising global temperatures caused climate-related natural disasters.**

At Glasgow, Scotland, during the COP26 in 2021, India's Prime Minister, Narendra Modi announced India's aim of achieving net zero emissions by 2070. Within one year, at the COP27, at Sharm El-Sheikh, Egypt, India submitted its long-term low emissions growth strategy indicating low carbon transition pathways in key economic sectors. Responding to the call for increased ambition in our 2030 climate targets, India updated its nationally determined contributions in August 2022, embarking on far-reaching new initiatives as a testimony to India's ethos of collective action for the global good. At the heart of India's vision of a safe planet is now a one-word mantra – **Lifestyle for Environment - Mission LiFE**- that Prime Minister Modi set forth in the national statement at the COP26.

India, home to 1.3 billion people, is undertaking this arduous effort, despite the reality that its contribution to the world's cumulative emissions so far is less than four percent and its annual per capita emissions are about one-third of the global average. As the world's most populous democracy and a vibrant emerging economy, India seeks to lead by example. However, one of the biggest culprits of the deteriorating environment in India continues to be new building constructions that account for about forty percent of the annual fossil fuel carbon-dioxide emissions, leading to increases in flooding, fires, hurricanes, and billions of rupees in annual damage.

**It is a global emergency of our own making—irreversibly changing life as we know it.**
**So, how are we dealing with crises?**

Organisations that are associated with the building industry are increasingly claiming to be sustainable, but few can provide hard evidence that their business practices while improving the situation, are not parallelly damaging the environment. Most companies' business model is to expand and sell more of their product - a mindset that naturally leads them to deplete valuable resources.

**Meanwhile, when one pictures traditional Indian buildings, one recalls the feeling of the built environment effortlessly being one with nature.**

Be it the coolness during harsh summers or the warmth during severe winters, it is almost magical to feel the very same space transform and accustom itself to its natural surroundings with such ease. This innate ability is because of the unsaid incorporation of sensible design principles. As old as the tale of mankind is the designing of spaces that naturally tackle the problems of heat, ventilation, and energy consumption, considering natural air movement, energy, and light to warm and cool the building with respect to the behaviour of the surrounding natural environment, thereby creating "comfortable" buildings.

**The question then arises is - Are the "sustainable" building practices being followed genuinely sustainable?**

**Are we supporting and improving our lot towards a more comfortable and liveable planet, or are we merely solving the problems of our own creation, and creating some more in the bargain?**

Supporting real sustainability means encouraging customers to consume less, to "tread lightly", as environmental experts would say. Every day we make choices in our lives that affect the environment - from what we eat to how many children we decide to have there is a lot we can do to reduce our environmental footprint to leave more room for wild animals and plants.

**So, how do we "tread lightly"?**

The answer lies in low consumption, to reduce the need and hence the impact, to employ design strategies that take into consideration the effect of natural resources occurring on the site when designing the building's comfort systems. Passive design strategies and interventions help extend the lifespan of the building, increase thermal comfort and decrease greenhouse gas emissions. Adapting these principles during the early stages of design brings potential advantages in making the structure closer to being "net-zero" or carbon-neutral.

**It is in this scenario that architects, particularly those in the practice of the profession, are key players in the realisation of passive design practices.**

By their understanding of inherent design strategies, materials and techniques, practising architects can ensure that their buildings incorporate "sustainability by design", hence not only contributing to a reduced carbon footprint, but also minimizing the need for the active intervention of energy-intensive "sustainable" techniques.

Since the time sustainability became a buzzword, there are dime a dozen organizations, agencies, practices and concepts floated in the eco-system, all claiming that they are one above the other in the race for saving the environment. Perplexed by the scenario, increasingly sceptical about the consequences of implementing any of these, and, in the absence of a singular collective thought that could de-clutter the jargon and put it all together, most practising architects, even though they understand and believe in the underlying principles of sustainability, steer clear of the efforts being taken in this direction, which is being taken up by other allied professionals in the field.

**The Sustainability Committee, the Northern Chapter, Indian Institute of Architects, as a part of its unique agenda, realised the chasm and understood the need to bridge the gap.**

It subsequently started an initiative for enabling its member architects for meeting several sustainability-related compliances such as those associated with ECBC and others that were steadily becoming mandatory in various parts of the country, as well as for updating the sustainable design skills of the busy working professionals and aligning them with their own abilities to sensitively employ passive design strategies. The Committee started to organize capacity-building training workshops and other awareness events on a regular basis, more than four years ago. The events were held on weekends to make it convenient for working professionals to attend and were highly subsidised for member architects.

**Under this, the first initiative was taken up with GRIHA – Government of India's first green rating system that focuses primarily on passive design principles.**

An IIANC-GRIHA joint action committee was formulated, and a memorandum of understanding was created. The existing modules for the GRIHA training programs were curated with special emphasis to the needs and requirements of practising architects. Complex calculations especially those concerning energy and water utilisation in buildings were not only simplified, but the time spent for training on these modules was increased to enable creative minds to comprehend the logistics. Selected trainers from the GRIHA Council for these training programs were those with an architectural background in order that they address the specific mindset and queries of architects.

Later during the pandemic as well, the process continued unabated, with modifications to the existing memorandum with respect to the new conditions required by the new normal. The training modules were reframed to create a combination of online and offline modes for a more compatible hybrid version to be followed in the scenario which necessitated reduced physical contact. The programs could now be extended to take on a wider pan-India outreach, enabling more and more practicing professionals to participate.

**The IIANC-GRIHA programs were highly successful, with seats getting rapidly filled up every time, without fail.**

**Meanwhile, during the years 2018-2019, the Ministry of Housing and Urban Affairs, MoHUA, adopted several "New and Emerging Technologies" for building construction, through the building materials trade promotion council (BMPTC).**

By the year 2021, 54 different technologies relating to several aspects of construction, were approved and mandated to be adopted in all future projects irrespective of location and cost. It was further decided that in case it was not found feasible to implement the same in any government project, specific permission needed to be obtained from the DG, CPWD, on a case-to-case basis with a detailed justification of the same.

**Encouraged by the success of the GRIHA-IIANC Initiatives, the Sustainability Committee quickly recognised this direction being taken by the government of India.**

Talks were initiated with the team at the BMPTC in 2021 to create a series of workshops and training events on alternate building technologies for member architects of the northern chapter, via knowledge-sharing programs, site visits, and other initiatives. The sensible and conservative use of materials via efficient detailing and improved techniques formed the underlying basis of the understanding. In early 2022, as soon as the pandemic started to fade away, a memorandum was signed and an ambitious plan to disseminate information regarding new and alternate building materials and technology was launched for all practising architects.

Currently, efforts are also underway to engage with several other agencies involved in the research and development of passive design strategies, materials, and technologies by the creation of joint action committees, through curated training programs and site visits, as well as documentation of relevant know-how in simpler, easy-to-comprehend formats.

**The call is now on for all like-minded architecture professionals to rally around the creation of a specialized Centre for Sustainable Practices at the Northern Chapter, the Indian Institute of Architects.**

The world today urgently needs a paradigm shift from mindless and destructive consumption to mindful and deliberate utilization.

We are trustees of this planet earth. We must nurture it through sustainable lifestyles that optimize resource use and minimize waste. Our journey towards a planet safe for humanity is one that no one can undertake alone. This is a collective journey to be undertaken with equity and climate justice as our guiding principles.

Since buildings consume nearly half of the energy consumed annually and emit around half of the carbon dioxide through the development of greenfields, cement production, and the emission of construction and demolition waste, and, carbon emission is a prime cause of global climate change because of its ability to trap solar energy in the atmosphere, thereby heating the planet, our responsibility as the architecture fraternity becomes manifold.

With the changing nature of the climate, architects too must make the change.

**In architects' jargon, climate change is the primary "design problem" of our times.**

*"It is time for urgent action. It is time for a better future on a healthy planet"*

*All images courtesy:* **Author**

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Those desirous of joining the Centre for Sustainable Practices initiative may kindly drop us a mail at archkg@gmail.com.

# POST CONSTRUCTION EVALUATION OF BUILDINGS FROM GOA HAVING PRIOR ENVIRONMENT CLEARANCE

**Ar. Gautam Desai**

**Importance of Environmental Law**

The world faces a number of environmental problems, and clearly humans are not managing these problems as well as they could. In the tragedy of the common examples we see many natural systems that are suffering because human societies are systematically unsustainable. So, the goal of policy is to correct these systematic unsustainable elements and return us to a more sustainable path. This article looks at the background behind many ideas of environmental policy, to see how they work and how they're applied. Many places have air quality problems, for example, London in the 1950s had a huge problem with smog pollution which killed thousands. So, smoker fields were banned and electricity plants were moved away from the central city of London. Chimneys were made taller, so that the pollutants dispersed before they reached ground level. In the case of smog, the U.S. Environmental Protection Agency mandates that a city must keep its pollutants below a certain level. For example, carbon monoxide concentration should be below nine parts per million. It's up to the city then, to figure out how to make this ambient standard work and how to meet that standard, and so there can be further regulation. Thus, power plants might require scrubbers; factories might have to close; leaf-blowers might get banned; cars might have to have catalytic converters fitted, and so on. Another type of command and control is individual standards. This is sometimes implemented as performance or technology standards. In the case of a technology standard, a device has some requirements. For example, in the United States, refrigerators have to meet the federal standard on the amount of energy used, before they can be sold. Cars have to maintain a certain fuel efficiency. Environmental law and legislation are central in protecting humans as well as plants and animals in the ecosystem. Environmental law addresses a wide variety of different area and ensures that individuals, governments cooperate and do not cause harm to the environment. Listed here are some of the most central areas that are governed by environmental law. The main principles are:

- Reducing air pollution and maintaining air quality
- Water Quality
- Waste management
- Containment cleanup, damage mitigation
- Chemical safety
- Sustainability of resources

### Development of EIA processes in India

In 1976-77, the Planning Commission of India directed the Department of Science and Technology to examine the river-valley projects from an environmental angle. This is when the Indian experience with Environmental Impact Assessment (EIA) started. Further, the projects which required the approval of the Public Investment Board were also covered and asked to be examined from an environmental angle. The Environmental Clearance (EC) from the Central Government was an administrative decision till 1994 and lacked legislative support for the same.

The Union Ministry of Environment and Forests (MoEF), Government of India, under the Environmental (Protection) Act 1986, formulated an EIA notification on 27 January 1994 making it mandatory to obtain Environment Clearance for expansion or modernization of any activity or for setting up new projects listed in Schedule 1 of the notification. Subsequently, 12 amendments have been made in the EIA notification of 1994.

It becomes compulsory for various projects such as mining, thermal power plants, infrastructure (road, highway, ports harbours and airports), river valley, and industries including very small electroplating or foundry units to get EC vide the September 2006 notification. The new legislation however, has put the onus of clearing projects upon the state government depending on the size/ capacity of the project, unlike the EIA Notification of 1994. The Coastal Regulation Zone (CRZ) Act, 1991 also makes it mandatory for certain permissible activities to obtain similar clearances. There are certain donor agencies which operate in India like the World Bank and the Asian Development Bank (ADB). They have their own and a different set of requirements for giving EC to projects that are funded by them.

Regardless of the project classification, the project is in a heavily contaminated area, i.e., within a 15 km radius of the boundaries of ecologically sensitive areas, including protected forests, national parks, protected areas and biosphere reserves. Each state is also required to obtain EC directly from the central government.

### Climate Change in Goa: Observations and Projections

Due to the build-up of greenhouse gases (GHGs) in the atmosphere, global temperatures are rising. The atmospheric $CO_2$ concentration has increased from 285 ppm during pre-industrial times since the mid-1700s to -410 ppm in 2019. In response to this GHG build-up, the global mean temperatures have already risen by about 1ºC compared to pre-industrial times (Met Office, 2015). The Indian sub-continent is also experiencing rapid warming particularly since the 1980s. According to the analysis by IMD (2019), the annual mean temperature during the 1901-2018 period showed an increasing trend of 0.6ºC/100 years. As per IMD (2019) assessment, a significant increasing trend was seen in maximum temperature (1.0ºC/100 years), and relatively lower increase (0.2ºC/100 years) in the minimum temperature over India.

As GHG build-up is projected to further rise in the 21st century, temperatures are expected to increase even further. It is agreed by the scientific community that global temperatures should be capped below 1.5-2ºC, which creates the dangerous threshold for climate change. The Paris Agreement aims to limit warming below these levels.
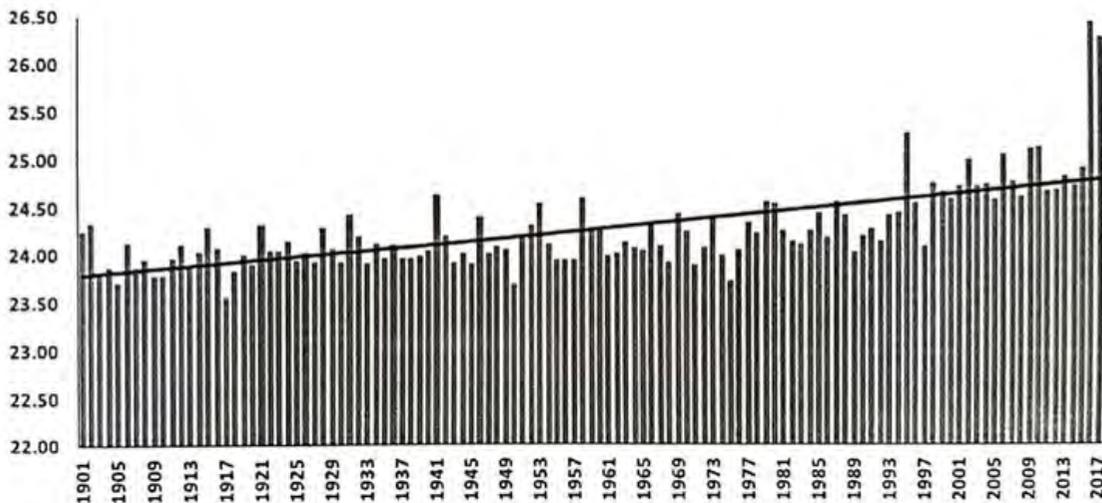


**Figure 1:** Observed temperature change (in deg C) in India
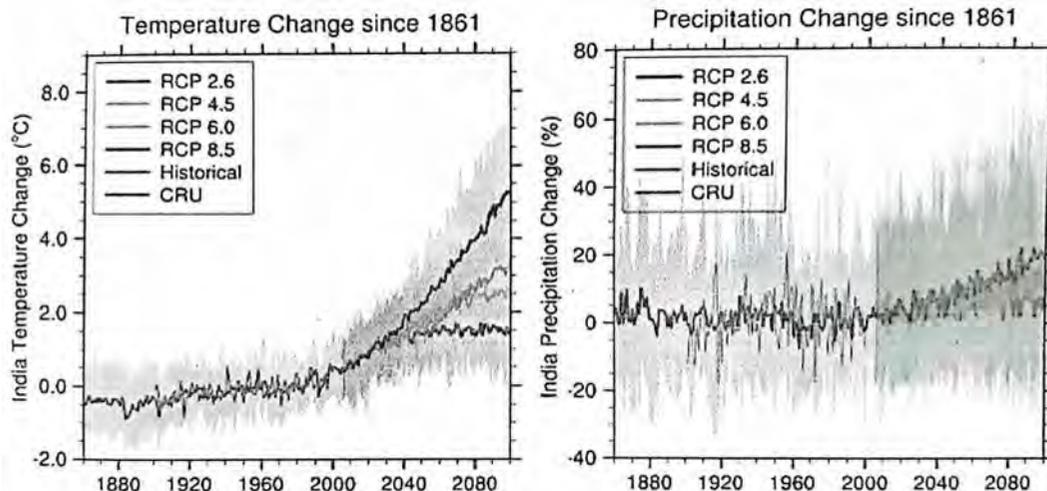*(Source: IMD, 2019)*

**Figure 2:** National level projections for temperature and rainfall in the 21st century
*(Source: Chaturvedi el at, 2012)*

At an all India level, Chaturvedi, et al (2012) project that "under the business as usual (between RCP6 and RCP8.5) scenario, mean warming in India is likely to be in the range of 1.7 to 2°C by the 2030s and 3.3 to 4.8°C by the 2080s, relative to pre-industrial times." Further, it was projected that "all-India precipitation under the business-as-usual scenario is projected to increase from 4% to 5% by the 2030s and from 6% to 14% towards the end of the century (2080s) compared to the 1961-1990 baseline."

The global CMIP5 model ensemble-based annual temperature change (°C) projected for the 2030s, 2060s and 2080s, relative to the pre-industrial baseline (1880s) for the four RCP scenarios. All-India annual mean temperature increases by 1.7-2.02°C by 2030s under different RCP scenarios and by about 2-4.8°C by 2080s, relative to the pre-industrial base. The above figure projects a consistent warming trend over the country in short-, mid- as well as long-term scenarios. As expected in each of the three time slices RCP2.6 generally experiences the least warming, whereas RCP 8.5 is associated with the highest warming, with RCP4.5 and RCP6.0 representing the moderate warming scenarios. Generally, the northern part of the country is projected to experience higher warming compared to the southern counterpart.

### Assessment of Selected Environmental Clearance approved Projects in Goa
### Introduction
Goa, being a small state, the number of projects with EC approval are limited. All these projects are located in the coastal and the more developed talukas of the state. The projects have been selected from such talukas. Certain factors, beyond the fact that they had to have an EC, had to be considered, like accessibility to the required information from the consultants, project proponents, etc. Another criterion for selection of the project was 70 % occupancy, in order to obtain a correct assessment.

Site visits were an important consideration for a post-occupancy evaluation and hence, permissions from the societies, acquaintance with the residents, etc. were essential and played a part in selection of the case studies. Hence, secrecy of identity clauses had to be enforced to conceal the names of the projects/project proponents.

### Relevance of selected Projects
The five projects (See Table 1) that have been chosen have been through the process of EIA and have obtained the necessary EC from the concerned authorities, as well as the requisite permissions and occupancy certificates from other statutory bodies. These projects have an activity area (including those where specific activities are proposed) of 20,000 sq.m and above, as mandated for EIA clearance. The selected projects are complete and occupied by residents with necessary permissions from the concerned authorities. This was necessary from the point of view of getting meaningful feedback for the post-occupancy assessment. The projects for case studies are located in the talukas of Bardez and Tiswadi in the state of Goa as these talukas have seen a maximum number of projects approved and executed in the last few years.

### Conclusion
*Land Environment:*
1. The focus of most of the projects seems to be on site landscaping, preserving flora and fauna of the place, water management, energy management and waste management.
2. The fixed set of parameters, under which the EIA is done, provides rigidity for the whole process and does not give much flexibility for the site context to play a significant role in the proposals.
3. The bigger plots are divided into two parts, taking full advantage of the set of rules to subdivide the plot into two. These rules and regulations allow a part of the plot to escape the EIA permission/ clearance although practically being part of the same project.

Table 1: **Five projects under study, considered for EIA and have obtained EC.**
*(Source: Compiled by Author)*

| PROJECT 1 | | | | |
|---|---|---|---|---|
| **Location** | Taleigao Village, Taluka Tiswadi, Disrict-North Goa<br>Longitude- 73°49'09.98" E<br>Latitude- 15°29'02.18"N | | | |
| **Plot Area** | 11,988.67 sq m. | | | |
| **Built-up area** | 23538.92 + 19178.55 = 42717.47 sqm. | | | |
| **Observations** | | | | |
| **Site Planning** | **Water Mgmt.** | **Building Materials** | **Energy Mgmt.** | **Waste Mgmt.** |
| *Open Space:* This project does not have a lot of openness and green areas plantation is done along the periphery. | *Water Harvesting:* Water from the roof is collected and diverted to ground water. | Materials used are same as in any other building. | *Use of energy efficient fittings:* LED lights used for common areas have been provided. | *Segregation of Waste:* Dry and wet garbage is collected by the Panchayat on regular basis. |
| *Flora and Fauna:* Local trees including flowering and fruit bearing trees were planted. Plant species having large canopy size were selected. Landscaping is carried out in the form of avenue plantation along roads. | *Water treatment:* Water is treated to be reused for gardening. | | *Use of renewable energy sources:* Solar water heaters are installed on roof. | *Treatment and Disposal of waste:* STP of 100 CMD provided. |

| PROJECT 2 | | | | |
|---|---|---|---|---|
| **Location** | Village Socorro, Bardez Taluka<br>Longitude 73°49'33.43" E<br>Latitude 15°32'24.37"N | | | |
| **Plot Area** | 61,875 sq m. (Part A=45,613 sq m. & Part B=16,262 sq m.) | | | |
| **Built-up area** | 57440 + 19945 = 77,385 sq m. | | | |
| **Observations** | | | | |
| **Site Planning** | **Water Mgmt.** | **Building Materials** | **Energy Mgmt.** | **Waste Mgmt.** |
| *Open Space:* Not all open spaces are green, some are converted to hardscape.<br>Paved areas are kept semi permeable. | *Water Harvesting:* Water from the roof is collected and diverted to ground water. | Fly ash bricks are used for external walls. | *Use of energy efficient fittings:* LED lights used for common areas have been provided. | *Segregation of Waste:* Dry and wet garbage is collected by the Panchayat on regular basis. |
| *Slope:* The building is designed in response to the contours of the space. | *Water treatment:* The infrastructure created for the use of treated water is used only for gardening and not used for flushing. | | *Use of renewable energy sources:* Solar water heaters are installed on roof. | *Treatment and Disposal of waste:* 2 STPs provided. Vermicomposting unit is provided. |
| *Flora and Fauna:* No original trees are seen existing. New trees were planted after the project was completed. | | | | |

| PROJECT 3 | | | | |
|---|---|---|---|---|
| **Location** | Bainguinim village, Tiswadi, Goa.<br>Longitude 73°54'13.81"E<br>Latitude 15°29'7.94"N | | | |
| **Plot Area** | 68,336 sq.m. | | | |
| **Built-up area** | 80,237 sq.m. | | | |
| **Observations** | | | | |
| **Site Planning** | **Water Mgmt.** | **Building Materials** | **Energy Mgmt.** | **Waste Mgmt.** |
| Open Space: This project has a lot of openness and green areas inspite of a part of it has been converted to hardscape. | Water Harvesting: Provisions have been made to direct the surface water runoff to recharge pits.. | Materials used are same as in any other building. | Use of energy efficient fittings: LED lights used for common areas have been provided. | Segregation of Waste: Recyclable waste is collected by vendors. |
| Slope: Part of the site was laterite quarry before development so there was depression in the site apart from site slope. Building is raised on stilts and also have bottom floor for parking. | Water treatment: Roof top water is collected, filtered and stored in the sump and is used for flushing. The treated water from STP is used for gardening | | Use of renewable energy sources: Roof top solar water heaters used. Street lamps with solar panels are installed on site. | Treatment and Disposal of waste: A full system right from segregation to shredding to composting of solid waste management is done on site taking care of wet as well as dry waste. |
| Flora and Fauna: A lot of greenery is seen in the project along with native plants. | | | Shading Devices: Majority of balconies of buildings are not enclosed which resulted in balconies acting as a strategy to keep interiors cooler. | |

| PROJECT 4 | |
|---|---|
| **Location** | Goa-Velha village, Tiswadi, Goa<br>Longitude 73°54'0.28"E<br>Latitude 15°26'26.03"N |
| **Plot Area** | 66,925.00 sq m.<br>Orchard Area = 24,399.00 sq m.<br>Net Plot area = 38,107.00 sq.m. |
| **Built-up area** | 25,747 sq.m. |

| Observations | | | | |
|---|---|---|---|---|
| **Site Planning** | **Water Mgmt.** | **Building Materials** | **Energy Mgmt.** | **Waste Mgmt.** |
| *Open Space:* This project has a lot of openness and green areas inspite of a part of it has been converted to hardscape.<br><br>*Slope:* The buildings are in stepped formation and thus planned as per slope of the site.<br><br>*Flora and Fauna:* Lot of existing trees are seen to be retained along with planting with a lot of new native trees. | *Water Harvesting:* Provisions have been made to direct the surface water runoff to recharge pits.<br><br>*Water treatment:* Roof top water is collected, filtered and stored in the sump and is used for flushing. The treated water from STP is used for gardening. | Doors are made of plywood and flooring of vitrified tiles. Paving is made of precast cement blocks. | *Use of energy efficient fittings:* LED lights used for common areas have been provided.<br><br>*Use of renewable energy sources:* Solar power has been used for water heaters only.<br><br>*Shading Devices:* Majority of balconies of buildings are not enclosed which resulted in balconies acting as a strategy to keep interiors cooler. | *Segregation of Waste:* STP is provided and the sludge from the STP is used as manure.<br>Vermicomposting unit is provided. |

| PROJECT 5 | |
|---|---|
| **Location** | Patto Plaza, Panaji, Tiswadi Taluka, North Goa. |
| **Plot Area** | 5213.10 sqm. |
| **Built-up area** | 28,532.87 sq m. |

| Observations | | | | |
|---|---|---|---|---|
| **Site Planning** | **Water Mgmt.** | **Building Materials** | **Energy Mgmt.** | **Waste Mgmt.** |
| *Open Space:* This project has minimum open space as per applicable bye-law.<br><br>*Flora and Fauna:* Some part of open space is maintained at the entrance for plantation of avenue species of plants. | *Water Harvesting:* Provision for rain water harvesting tank of capacity 92 KLD is made for collection of rooftop rainwater.<br>Water conservation fixtures used such as automatically closing taps. | RMC was used to minimise air/ water/ land pollution. | *Use of energy efficient fittings:* LED and energy efficient lights have been provided. | *Segregation of Waste:* Segregation of Biodegradable waste and non-biodegredable waste is ensured at the project. Organic Waste Convertor (OWC) is provided. |

*Water Environment:*
1. All infrastructure, like provision of STP, dual piping, etc. provides proper treatment of sewage and grey water, thus protecting and avoiding water pollution and promoting reuse of treated water.
2. The water-saving strategies seem to be restricted to providing rainwater harvesting tanks and/ or providing recharge bores.

*Solid waste:*
1. Provision of the infrastructure, in the form of vermicomposting stations to deal with the wet waste, has made it possible for treatment of wet waste.
2. Collection of waste from the local governing bodies is an easier option.

*Energy Conservation:*
1. The definition of 'balconies' needs to change in the bye-laws (presently it can be enclosed as per byelaws), and its monitoring should be part of post-occupancy audits (presently it's not a part). The balconies can act as a means to cut down heat in the interiors.
2. The only mention of solar energy seems to be that for the water heater, and at the most, some street lights. Whereas the generation of energy for water heaters works quite well, the same cannot be said about the street lights. Possibly because the hot water directly affects the residents whereas the street lights do not.

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# RICHARD ROGERS:
## AN ARCHITECTURE OF REINVENTION

**Prof. Rohit Shinkre**

Beaubourg …not a remote monument but a people's place…. a live centre for information.
*(Photo courtesy: Alain Bachelier Flickr)*

*"It is totally immaterial whether you like it or not; … because it hits you on the head, because it makes you think …"* was Nehru's comment on Chandigarh. The Centre Pompidou, a factory-like structure amidst the historic city centre of Paris had a similar impact when it was built and yet continues to.

This article shall discuss the architecture of Richard Rogers through 3 milestone projects; Beaubourg (1971-76), as the Centre Pompidou is called, Lloyds HQ, London, (1978-86) and Drawing Gallery at Chateau Lacoste, Provence (2021) his last project. His work draws on many avant-garde influences; the visual idiom of Russian Constructivists, the crafted details of Jean Prouvé and Mies, Buckminster Fuller's preoccupation with lightness, the neo futurism of Cedric Price, Archigram Yona Friedman, the organicity of the Japanese Metabolists, and the colours of Pop-art. Rogers' work along with his contemporaries Renzo Piano, co-author of the Centre Pompidou, and Norman Foster, was labelled as 'hi-tech'. However, a finer analysis reveals more than the unfettered use of technology challenging established norms of buildability; it is an architecture of reinvention.

**Contextuality:** The Beaubourg competition rules required the new building to be inscribed in the ilot, the urban block, adhering to the street alignments of Paris. Instead, a building twice as tall on one side of the site created a parvis or open plaza that quickly became and remains the most animated public space in the city. The project is as much about the activity outside as the art and information inside. The built defies the formal integrity of Hausmann's Paris and the unbuilt is space for spontaneous animations and assembly. Metaphorically, it is the people reclaiming their space in the power centre.

The drawing gallery at the Chateau Lacoste is both, an isolated white exhibition gallery and a frame of the vineyards and picturesque ruins of villages on the hill across. The structure, an 8m wide and 27m long cantilever over the hillside of a vineyard in Provence, is minimal yet dramatic.
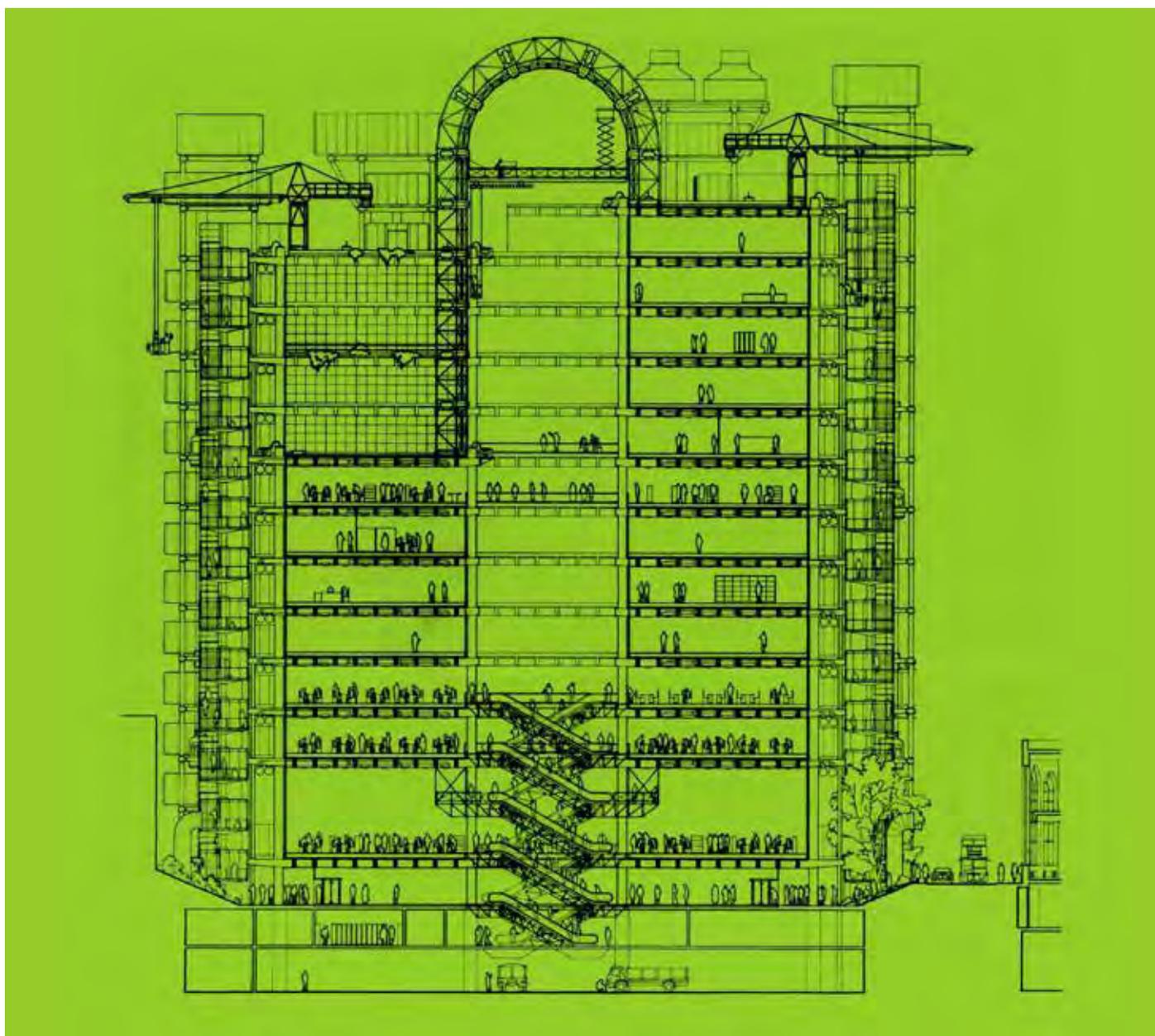


*Section on the Central Atrium of the Lloyds Building*
*(Image courtesy: rshp.com)*

The gallery projects out and frames views across the vineyard.
*(Photo courtesy: James Reeve  Dezeen)*

**Program:** Roger's designs build upon a contemporary interpretation of the program. He stresses new values of transparency, flexibility, and indeterminacy. In Beaubourg, the intent to provide a re-modellable space led to a structural system for a multi-storeyed column-free floor plate of 150mX50m. The structural innovation supports a strong architectural intent. The project predicted the information age that we are now living in. At Lloyds, the space program is dissected for parts of it to be built in situ and significant other parts to be fabricated remotely and assembled at the site. The grand central atrium and its battery of escalators transformed the work culture of Lloyds which had outgrown 3 premises within the last century. Rogers' brief was to lead it well into the 21st. Rogers sought and recognised the contribution of Lloyds in formulating the vision of the project. He was among the few 'Starchitects' to seek partnerships and dialogues to enhance the project brief. A process he saw as necessary to address the increasing complexity of our institutions.

**Movement and cinematics:** Mechanisation and cinema are two of the most importantly new experiences of the 20th century. Both inspire Rogers and are an integral part of his architectural vision. Equipment like escalators, lifts, and cranes are elements of architecture to him. The flight of escalators on the façade of Beaubourg is iconic. So are the glass capsule lifts of the Lloyds Building. Both offer a unique cinematic discovery of the surrounding city as we rise. Conceptually and experientially, they reflect a truly contemporary understanding of architecture and its urban integration. The cranes crowning the Lloyds building project facilitate its maintenance and express the fact that the building continues to be a 'work in progress' after handover and occupation. This is a radical departure from the static permanence associated with architecture.

**Modern classicism:** Rogers's architecture is classical in its constructive logic and the way the structural system defines the spatial order, the served, and the serving. The elements of construction are elegantly crafted and essential to the architectural expression- like the gothic or the early renaissance. It is, however, devoid of any linguistic references to the classical; no symbols, ornamentation or decorative elements of the past find a place in his vocabulary. Rogers' architecture does not glorify anyone or anything other than the place, the people, and the updated purpose. It is deeply Modern; reasoned, secular, and republican. It is hardly surprising that the then Prince Charles was one of his most vocal critics.

The exchange between the architect and the prince is epic and archetypical of the ideological oppositions between a progressive and a conservative view of art or architecture and of the world. Rogers' book *'Architecture: A Modern View'* (1990-91) may be an attempt to explain his position. I would consider it essential reading for any young architect and not the least because it is written lucidly as a practicing architect, an identity Rogers claimed as his foremost. It places architecture as an act of construction for the spatial organisation of social activity and touches upon *inter-related themes: patronage and capitalism, Modernism, Post-modernism, and the future.* The book is refreshingly concise, honest, and critical of both architects and their patrons. Rogers cautions about the dangers of the loss of an ethical ground leading to

the global trends of 'form follows profits' or '¥€$ is more' as Koolhaas coined later and the cultural inertness of romantic historicism. He is unequivocal about the need for human institutions to reinvent themselves to address the challenges of their era, sustainability being that of ours, and the role technology and ethics need to play therein. For Sir Richard Rogers architecture is an instrument for this reinvention. Its history is that of social and technical innovation and not of styles. He remains the quintessential modern humanist architect.

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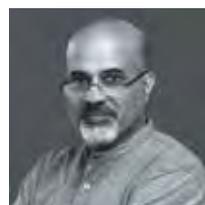
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# JODHPUR –
# SYMBOLS OF RAJPUT RESILIENCE IN STONE

**Ar. Mrinalini Sane**

Rear side Gardens –
Umaid Bhavan Palace

Since times immemorial, man has struggled for survival in forbidding natural conditions against all odds. Adversities come in various forms and hence the human solution also varies accordingly. Jodhpur, located in the state of Rajasthan, near India's western frontier close to the Pakistan border, is one of the last places of civilisation before the Thar Desert takes over. In Jodhpur, nature has been contributing to adversity with heat and dust from the rocky Thar Desert and the Aravali mountains. There is very little rain and very little green cover. But even here, Man, with his resourcefulness, has managed to convert the negatives into positives. The very elements have worked for the locals as a protection against enemies. In addition, since Jodhpur was on the trade route joining Arabia and India, it offered a place of respite – and yes, money from taxes and excise.

Meherangarh fort, constructed around 1459 by Rao Jodha, is a forbidding structure, darkly rising vertiginously over 120 meters from the very stones atop a hillock. It seems to be brooding and looking balefully at the enemies who dare have designs on the fort and its occupants. Towering above the city, its stone ramparts inspired fear and despair in the heart of the advancing enemy army. Till as recent as the early years of the 20th century, Meherangarh was the abode of the Jodhpur royals. A sentinel over the Blue City.

Today, the fort showcases history as a museum. There are beautifully carved jali work panels of stone. Contrasting painfully and sadly, are the carved handprints of the royal womenfolk who had committed johar in the face of a battle loss. They preferred to die rather than fall into enemy hands. Legend also says that due to a curse of a holy man, the construction of the fort was delayed time and again. As a result, the king begging forgiveness, wanted to know how to appease his wrath. The holy man replied that a young, able bodied man must be sacrificed, and the construction will continue without any interruption. A young loyalist readily offered to die for the king; he was buried alive within the thick walls of the fort. That location is revered till date. The kings down the ages, are said to have supported the young soldier's family for generations, till date, as an appreciation of his selfless sacrifice.



Meherangarh Fort – Ancient Citadel



Intricately Carved Jalis – Meherangarh Fort
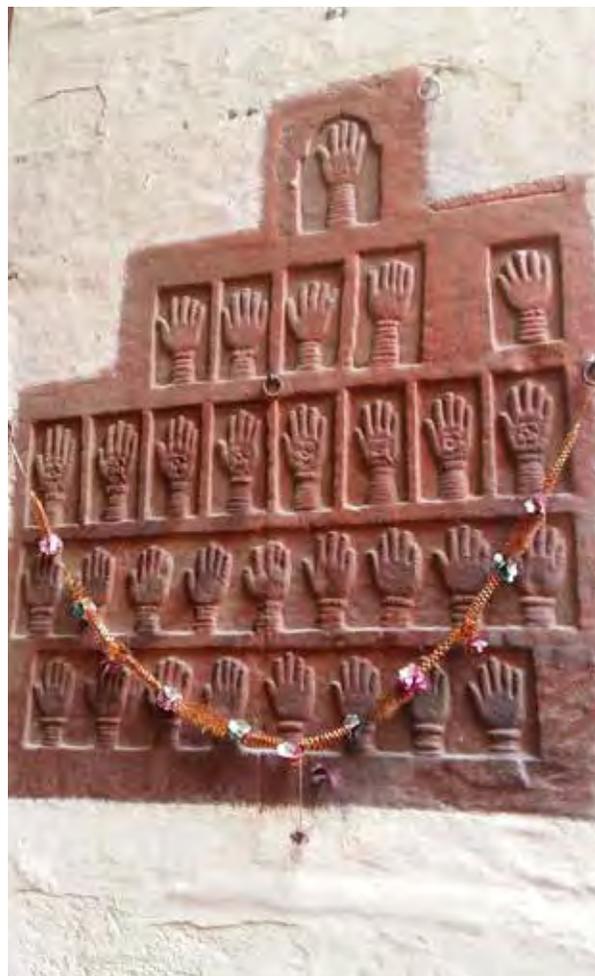


Johar Hand Imprints on the walls of Meherangarh – Evidence of the Ultimate Resolve, the Fountainhead of Resilience

Umaid Bhavan Palace – Main Entrance

Umaid Bhavan Palace – Zanana Courtyard

In the early 20th century, the region of Jodhpur was wracked by famine due to poor rains. No rains, no water, no farming, no food… it meant numerous farmers were starving and out of work. The self-respecting Rajput would have abhorred charity as the king very well knew. However, help was needed on an urgent basis. The creative answer to this problem was the construction of a new palace that was on the plains of Jodhpur. Architect Henry Lancaster, who had also submitted designs for the Viceroy's residence to be planned at New Delhi, was out of reckoning for the same as the project had been given to Lutyens. It was a pleasantly surprised Lancaster, who received a royal visitor, requesting him to design a palace as he was free enough to do so! And that is how, the Umaid Bhavan Palace was created – out of natural adversity came the necessity for a large scale construction project for the locals whereas for the architect, the loss of one prestigious project meant the commission for the design of nothing less than a palace, for a king!

Umaid Bhavan Palace is situated on a hilltop that looks across the city of Jodhpur to Meherangarh. The palace is built around two courtyards – the Mardana and the Zanana Courtyard.

Umaid Bhavan Palace was the residence of the royal family after the construction was completed. It was perhaps one of the last palaces to be built in the time of the British Raj. After the two world wars, the geographical boundaries of many countries were redrawn; new countries were born, old countries lost their land.

India became independent in 1947 and in 1950, it became a republic. Jodhpur was one the princely states that had merged into this country that was now democratically electing its leaders. The erstwhile king now took on the mantle of responsibility towards his erstwhile subjects in the democratic way. He stood for elections and was duly elected to represent his people. The designation had changed, the format had been modified, but the sense of commitment and responsibility towards his people continued. His people also loved and respected him – it was a reciprocal relationship based on mutual trust built over ages. The current king,
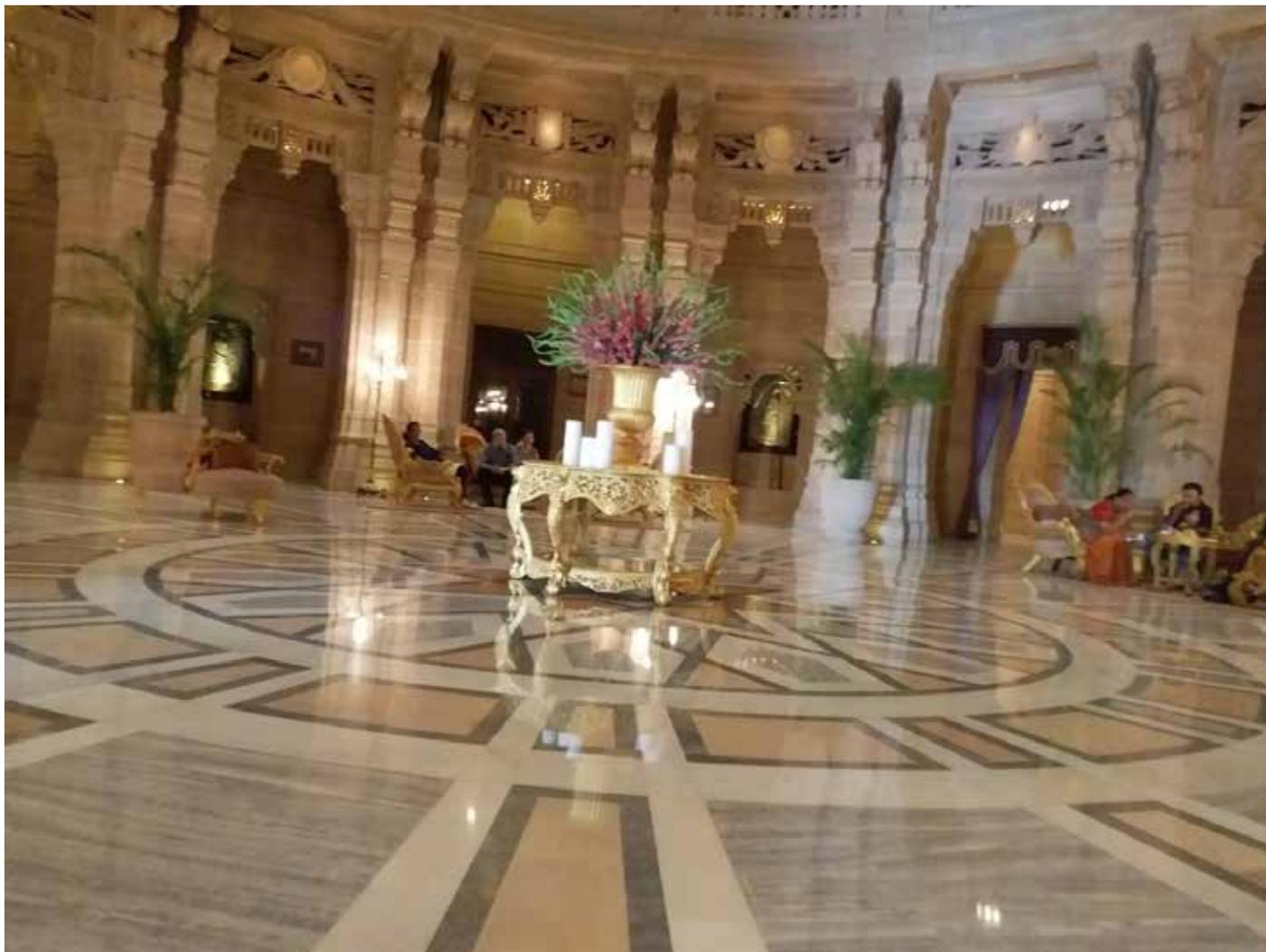
Umaid Bhavan Palace – 104 feet high Atrium

Maharaja Gaj Singh ji Rathod is fondly known as "Baapji" meaning respected father.

After the abolition of privy purses, the upkeep and maintenance of sprawling royal properties became very difficult. The sense of responsibility meant that a solution had to be found that was workable. It was in such circumstances that the Palace was converted to a luxury hotel operated professionally. Today, Umaid Bhavan Palace is one of the shining stars in the crown of the Indian Hotels group's flagship Taj group of Hotels. The current king and his family also continue to reside in one part of the palace. So it works on multiple levels.

The palace stands on grounds of about 26 acres including 15 acres of gardens. It has 347 rooms and is divided into three sections – one section is the Museum wing, one section is the Hotel operated by the Taj group and one section is the residence of the royal family. As one enters through the gates, a manicured lawn greets us. The guest is given a traditional, royal welcome with rousing drum beats and trumpets, tikka and tilak. Passing through the spacious vestibule, the twin curved marble stairs are seen. And then we step into the grand central atrium – the most dominant feature of the palace. This is indeed an awe-inspiring place with its grandeur – space, height, patterned marble flooring, gilded furniture, and large

flower arrangements, all of this in a circular plan, topped by a dome! The dome is visible from the outside reminiscent of greek and roman architectural styles. The series of windows on the cylinder on the dome sits, remind one of Capitol Hill structures. Well, why not indeed! After all, the design by Lancaster was an adaptation of the original design of the now Rashtrapati Bhavan, that was designed by Lutyens. The magnificence of scale and the opulence of furnishings with the stateliness of Chittar sandstone stonework balanced with intricate carvings, all go to make the guest truly feel that he is indeed in a royal abode.


Darbar Hall - Umaid Bhavan Palace

Pillars Restaurant - Rear view of Umaid Bhavan Palace, the erstwhile Main Entry

Risala, the indoor restaurant is situated across the hallway on the right of the central atrium. Other public spaces like the Trophy Bar, the billiards room, the lounge etc. are disposed around the hallway. A staircase leads to the upper floors housing the guest rooms and the various suites. These are arranged around the Mardana courtyard. A royal suite for instance, is accessed from the wide corridor. It leads into the living room, which is connected to the bedroom, and across to the spacious covered verandah. Running along the depth of this apartment, is the dressing area and the toilet. Marble is the theme – cladding the walls, the flooring, the "his and hers" wash basin counters, the bathtub, the shower stalls. The rooms are furnished in the Art Deco style. Sitting in the veranda, sipping some hot tea, one can appreciate the view of Meherangarh fort, imagining the same view being enjoyed by the previous royals… closer home, is the view of the rear garden with extensive lawns and spherically trimmed bougainvillea bushes. The central focal point of the garden is the "baradari" – a marble pavilion. Looking at the Palace from the baradari, one sees an impressive elevation with grand steps. Actually, this rear elevation, was the originally planned frontage. It starts making sense now. The series of pillars, the broadly covered verandah, the overall features decorating the walls, and yes, the view of the majestic Merehangarh from this side, yes, this has to be the front elevation. Well, it was vastu consideration that forced the orientation of the Palace to be changed – the current front is the planned rear! Now the front verandah with its columns is used as an outdoor, semi-covered restaurant aptly named Pillars.

On the other side of the central atrium, lies the Zanana courtyard. On the ground floor, it houses the shopping arcade on the inside. There is also a museum that is open to the public which is accessed from the outside. There is also a remarkable vintage car collection near the museum. The upper floors are the private residential areas of the current royals who continue to stay here in the Palace that was built by their forefathers in the not so distant past, just about 1 century ago. In addition to these spaces, there are two large halls – the Durbar Halls which are used for conferences and such gatherings including weddings. There is also an auditorium named after the well-known classical musician sarod player, Ustad Ali Akbar Khan.

The Presidential Suites offer an imperial experience. The Maharani Badan Kanwar suite or the bridal suite comprises of large living areas with dining for 12 persons, serviced by a kitchen; bedroom with attached spa area and a bathroom with some special features – a bathtub and wash basins that are carved from single pieces of pink marble each! Similarly, beautifully carved mirrors are in this bathroom, which, incidentally, has a balcony.

There are two swimming pools in the Palace – one that is outside has been a new addition. But the delightful indoor pool in the basement level below the main lobby is a wonder to behold. With a theme of zodiac signs, the entire pool is surrounded by columns that support the large span roof. The blue and white tiles on the corridor floor trace out the zodiac symbols. The spa area is adjacent to the inside pool; the gymnasium is located near the outside pool.



Indoor Swimming Pool

The entire palace has various elements to remind the guest of its royal glorious past – various stuffed animal trophy heads – stags, deer, tiger skins, stuffed cheetah… the ritual of shikar and hunting, contrasting with the fine collection of various objets d'art displayed casually but carefully in the public areas like the lounge. Portraits of the previous royals look at the goings on, as though giving their approval. The multi coloured veneer picture of another royal certainly makes one gasp with wonder.

Hunting trophy


Twin Marble staircases

Architecturally, there are a few features that are rather distinctive:

- This palace was air conditioned at a time when air conditioning, as we know it today, was not prevalent. The central dome is in two layers and the space between the two domes, which is hollow, was filled with ice. This ice would cool water that would run along pipes all along the walls of the Palace. Today, the grill-like openings from where the cold water would run, cooling the air, are visible; however, now modern air conditioning has been done discreetly in individual guest rooms and the restaurant areas.
- The indoor swimming pool with a large span roof is also a structural design feature that is impressive.
- This Palace had a lift that was for the private use of the king. This lift has a sofa for the king to be seated while he is travelling in the lift.
- The royal motif that is seen on the various facades is a combination of an eagle, wild boar and an elephant.

Today, Umaid Bhavan Palace hotel is one of the most sought after locations for luxury events like celebrity weddings and the like… Baapji, the current king and his family occupy part of the premises, giving a royal feel to the overall guest experience. If he is in the city, one may seek and get an appointment to meet him.

The City of Jodhpur, along with Meherangarh fort and Umaid Bhavan Palace stand together resiliently through centuries of social and political changes and upheavals. This place – an ancient outpost of civilisation, offers a royal and gracious experience in the midst of the hot and dusty desert that surrounds it.

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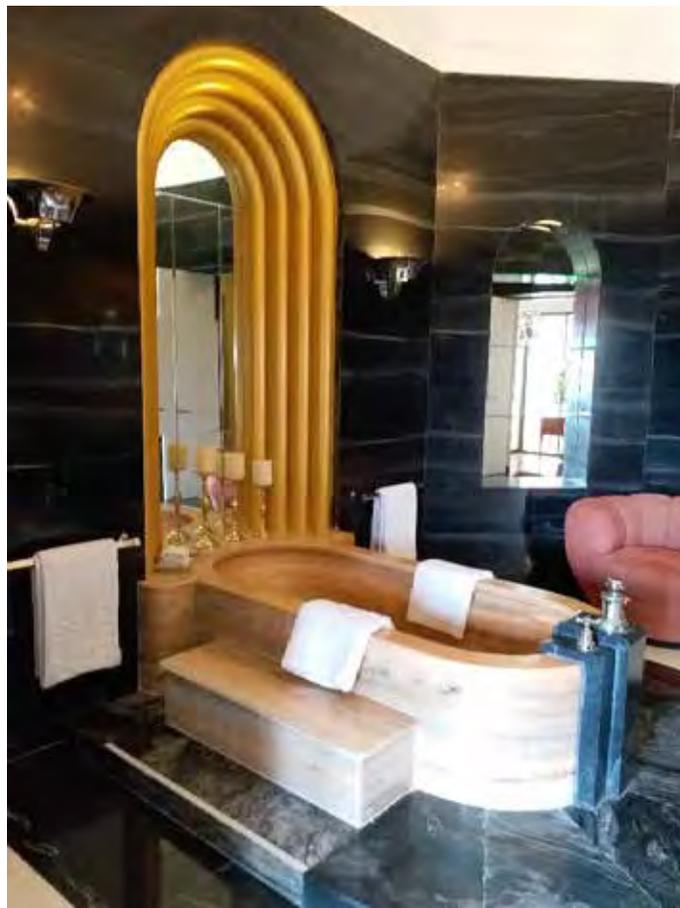

Maharani Badankanwar Suite Bathroom - Bath Tub carved from a single Pink Marble block

Baradari

**Ar. Mrinalini Sane**
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# BUILDING RESILIENCE THROUGH SUSTAINABILITY

Ar. Punit Sethi

## Introduction

Resilience and Sustainability are two distinctly different terms, though they are often used in conjunction in the achievement of today's key social, economic, and environmental goals. These terms tend to get interlinked specifically when it comes down to recognizing their potential in resource conservation policies. The definitions of Resilience are many, since it is a subject studied by researchers from diverse disciplines, including environment, ecology, human physiology and psychology, social systems, cities and economies. In a most common definition that goes back to Holling (1973), resilience is thought of as "[…] the magnitude of disturbance that can be absorbed before the system changes its structure by changing the variables and processes that control behavior" (Holling and Gunderson, 2002).[1] Fundamentally, resilience is the ability to deal with change, withstand adversity or to bounce back after experiencing shocks from environmental and technological changes.

Sustainability was defined by Brundtland Commission (WCED, 1987) as the ability to meet our own needs without compromising the ability of future generations to meet their needs. While addressing our obligations towards future generations, the primary question of sustainability that needs to be answered is to what extent do we maintain our natural resources in order to enable future generations to meet their needs. United Nations, in 2005, said that Sustainability is not just about environmentalism, but embedded therein we also find concerns for economic development and social equity. Going further the Resilient Design Institute defines resilient design as "the intentional design of buildings, landscapes, communities, and regions in response to vulnerabilities to disaster and disruption of normal life" (Tobias, 2020)[2]. Simply put, while resilience means the ability to become strong, healthy, or successful again after something bad happens; sustainability means the ability of a system to last or continue for a long time in a manner that it is able to protect the nature and the environment from the impacts of human society. These definitions are inspired by various concepts for achieving balance and continuation in nature.

To understand the concepts of resilience and sustainability more easily let us take the example of locally grown food. Being native to the environment and geology, locally grown food is often healthier and tastier to eat compared with food produced elsewhere or in other countries. Producing food locally reduces the amount of fuel needed for transportation over long distances. Locally grown food will be available for consumption rather quickly compared with the one being transported over long distances, which will further need preservation measures and will also increase wastage of the produce. Local food is likely to be grown using traditional agricultural methods, because of which there may be little or no requirement for pesticides, herbicides, fertilizers, et. al., and even plastic for packaging, all of which are produced using fossil fuels. In the event of any untoward incident, increase of fuel costs, inclement weather conditions, war or turmoil, etc., the community which is dependent on locally grown food is likely to more resilient compared with one that is depended on food travelling long distances, thus decreasing food shortages and contributing to socio-economic stability.

## Scenario that confronts us

Cities of today are home to approximately 55% of world's population. It is expected to reach a staggering 70% by the year 2050, resulting in addition of more than 300 million people to urban centers. The actions taken by cities to combat challenges of climate change, migration, poverty and pollution, will have a fundamental impact on rest of the world. Understanding the value of natural assets is the key to finding any viable solution for protecting our commons. Urban resilience, hence, can be built through an approach that cuts across different systems, with cities addressing their relationship with the natural environment as a critical part of strengthening themselves.

Increasing urbanization, economic growth, and the rising consumption patterns have resulted in an alarming increase in consumption of natural resources per capita. Rise in incomes gives rise to demand for better living standards, thereby adding significant stress on environment and natural resources. The last century saw tremendous economic and social progress, though accompanied by significant environmental degradation, threatening human survival. To support our economies and economic activities, we continue to use natural resources in ever-increasing amounts. With the increase in urbanization and ever-growing production and consumption needs of urban centers, the natural resources are constantly under pressure, posing a threat not only to public health & safety, but a growing strain to the urban and rural ecosystems. The result is a series of environmental problems including urban waste, urban water quality & availability, urban air quality, urban transportation and degradation of coastlines. Policies must be embraced to improve resource efficiency, reduce waste and mainstream sustainability practices across all sectors of the economy.

The sectors which contribute most towards carbon emissions are transport, power generation and distribution, agriculture, construction and industry. Ever increasing urban growth and expansion will require more resources for creating a habitable environment. The built environment demands around 40 percent of the world's extracted materials, while waste from demolition and construction represents the largest single-waste stream in many countries.[4] According to Census 2011, nearly 380 million people live in urban areas in India. It is estimated that by 2030, this figure will be close to 600 million. With steady increase in population and continued urbanization India is likely to witness an emergence of another 60-70 cities of million plus population by 2030. This development will require more energy to fulfil the demand for every sector, like housing, commercial, industrial, institutions and health facilities. As per estimates, currently India is the 4th largest contributor of carbon emissions after China, the US and the EU, releasing around 2600 megatons of carbon dioxide emissions annually, which is around 6-7% of the overall global figure of 35 million kilotons (Fig. 1).
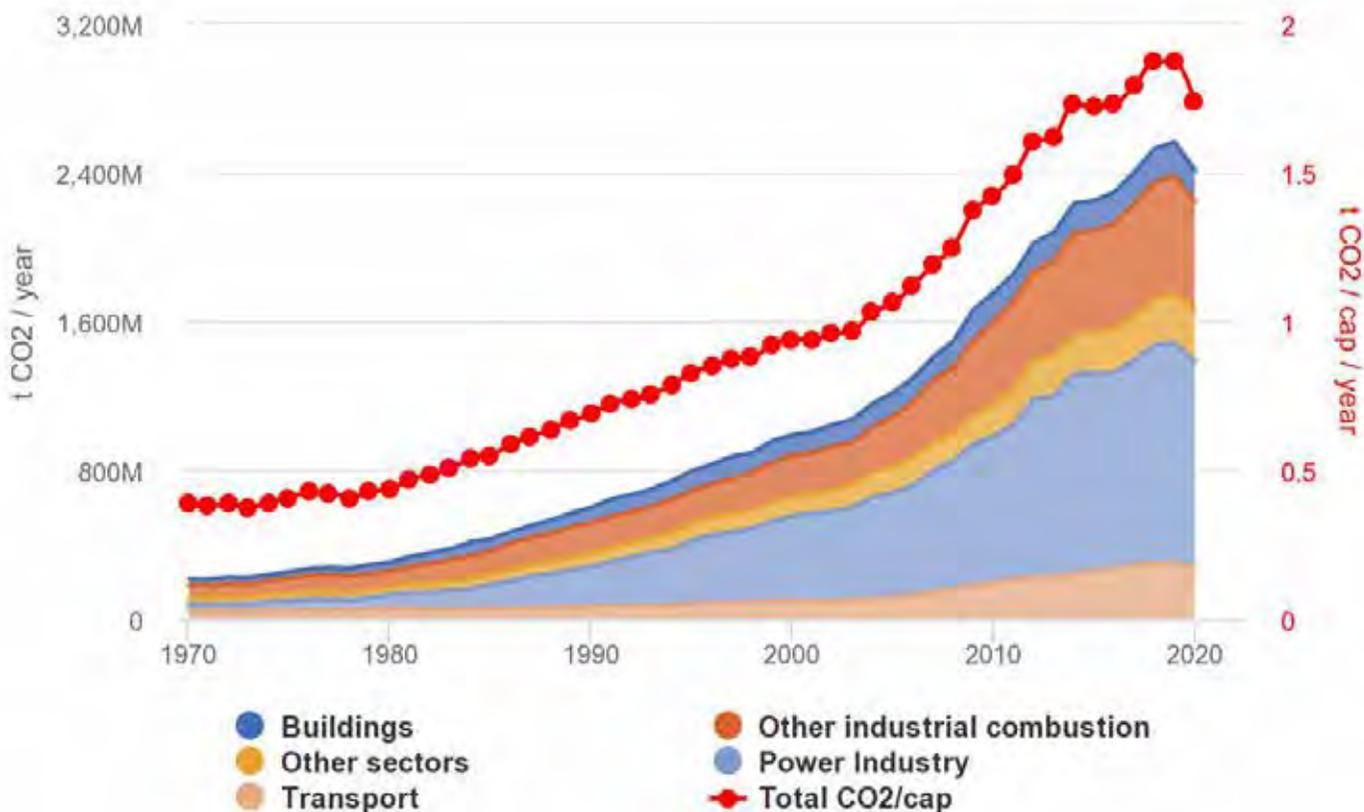
Fig.-1: $CO_2$ Emissions by Sector in India (2020)[5]

## Response to Climate Change

We are well aware that Climate Change is a terrifying reality for people across the globe, as the world is witnessing increasing number of storms, floods, drought and forest fires, thus exposing the vulnerability of human habitat and its ecosystems. Consequent to natural disasters, resilience and sustainability often become the key topics of discussion as a way to mitigate the impact of climate change. The increase in man-made and extreme weather disasters is provoking a global response toward disaster risk mitigation and to support people in areas facing recurrent disasters or conflicts. Resilience in the built environment, hence, is about ensuring healthy and intact natural areas, which can protect populations and their local environments from 'harsh climate' impacts by resisting damage and recovering quickly without losing function or services.

Increasing demand-supply gap, the depleting environmental conditions and frequent exposure to climatic disasters are reasons for the increase in awareness of need for sustainable and environmentally friendly practices. To achieve this, it is imperative that major steps are taken towards using all resources in a controlled and judicious manner to shrink the ever-increasing ecological footprint. This footprint, also termed 'carbon footprint', is a measure to understand our consumption patterns. The building industry is not only a vital element of economy, but also has a major impact on environment. Owing to its sheer magnitude, the construction sector consumes the largest quantity of water, energy and material resources, as well as being a polluter of man-made and natural environments around the globe. In response to such impacts, there is a growing consensus among institutions committed to environmental protection for adopting appropriate strategies and target oriented actions to make building activities sustainable. The changing policy landscape in the country is aggressively trying to address these concerns in a holistic fashion. The National Mission on Sustainable Habitats is addressing this by harmonizing Energy Conservation Building Code (ECBC) with building bye laws. The National Building Code of India has introduced a section on Sustainability in Buildings in its 2016 Edition.

Buildings consume energy for construction, operation and maintenance. Globally, about 40% of energy consumption is in the building sector. According to estimates 42% of water and 50% of raw materials consumptions globally, is attributed to buildings on account of manufacture of materials, construction and the operation of buildings through their life. Furthermore, buildings and their activities contribute approximately 50% to global air pollution, another 42% to its greenhouse gases, a staggering 50% to water pollution, about 48% to solid wastes and almost 50% of all CFCs into the environment. India also faces these challenges in its rapidly growing construction sector.[7] The Intergovernmental Panel on Climate Change (IPCC) has set a target of cutting emissions to NET-ZERO by 2050. Net-zero means a radical change across the entire economy, doing away with fossil fuels and other sources of emissions wherever possible. This means, every ton of $CO_2$ we emit must be matched by a ton that we remove from the atmosphere. Advancing net zero emissions is a journey and an integral part of a wider systemic shift towards a more sustainable built environment.



Fig.-2: The Sustainable Development Goals, United Nations[9].

**Understanding Sustainability and Sustainable Development**

A development that is conducted without depletion of natural resources is considered Sustainable. Such environment friendly developments focus on five important aspects, viz. efficient use of energy, water and other resources; protecting occupant health; improving productivity; reducing waste, pollution and harm to the environment; and shrinking the ecological footprint. The Three Pillars of Sustainability (United Nations, 2005) consider concerns for economic development and social equity equally important to environment. The Sustainable Development Goals (Fig.-2), were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030.[8]

At a broad level, the SDGs are an intertwined framework instead of a group of siloed goals based on the 5 Ps - People, Prosperity, Planet, Peace and Partnership. In the context of our planet, the aim is to protect earth from degradation by sustainably managing its natural resources, supporting the needs of the present and future generations and ensuring sustainable consumption and production. Goal 12, titled "responsible consumption and production", is about ensuring sustainable consumption and production patterns, which is key to sustain the livelihoods of current and future generations. Unsustainable patterns of consumption and production are root causes of crises of climate change, biodiversity loss and pollution.

The Concept of Sustainability is to create a balance among environmental, economic and social factors in a development. Sustainable development is a concept that aims at launching a large-scale political, economic and cultural project, harmoniously linking environmental requirements with those of economic development, from a long-term point of view [Camagni, 1998]. The most important factors are satisfaction of basic human needs, in accordance with available environmental, financial and social resources and implying intergenerational equity. The Three Pillars of Sustainability, their objectives and methodology of achieving the desired balance can be understood through the following table:-

Table: **Three Pillars of Sustainability**

| PILLAR | OBJECTIVE | METHODOLOGY |
|---|---|---|
| ENVIRONMENT | • Maintain Ecological Integrity of earth's environmental systems<br>• Consumption of Natural Resources is at a rate of their replenishment | Environmental balance can be achieved by:-<br>1. Reduction in pollution - air, water, land and noise.<br>2. Water conservation<br>3. Waste management<br>4. Use of integrated technologies for energy generation<br>5. Use of local and eco-friendly building materials in construction<br>6. Creation of utilizable open spaces and green cover<br>7. Reduction in building footprint. |
| ECONOMY | • Communities are able to access the resources that they require<br>• Economic systems and secure sources of livelihood are available to everyone | Economic balance can be achieved by:-<br>1. Provision of housing for different income groups<br>2. Low cost construction technologies for lower & middle income groups -affordability<br>3. Use of passive strategies to reduce overall energy consumption and operational costs.<br>4. Local market, local farming, local materials, local skills, etc. |
| SOCIETY | • Universal human rights and basic necessities are attainable by all people<br>• Communities are healthy, secure and protected from discrimination. | Social balance can be achieved by:-<br>1. Social interaction spaces<br>2. Provision of community gathering areas<br>3. Meeting places for Senior Citizens<br>4. Provision of recreational areas for different income and age groups<br>5. Safety measures for the people from accidents, fire and health hazards.<br>6. Better mobility for the transport disadvantaged |

Sustainable development strives to achieve a balance between the economic and social development of human habitat along with the protection of environment, equity in employment, essential services, transportation and social infrastructure. Sustainable Design, therefore, is about the decision making processes required for managing the relationship within and between natural and human systems in an orderly, transparent and equitable manner for the present and for the future. Sustainability in urban development can be realized by following an integrative process looking at the project as a whole, i.e. from design-construction-operation-maintenance to end of life service. To bring sustainability in urban areas, it is important to integrate sustainability in urban development and can be achieved by consciously incorporating the following macro-parameters for Environmental Design[10] that apply to urban developments at various scales:-

1. Planning
2. Landscape Architecture
   - Ecology
   - Environmental design & Urban Agriculture
   - Agronomy
3. Socio-economics
4. Water resources
   - Hydro-geology & watershed development
   - Improving water quality
   - Water recycling and recharging
5. Urban Mobility systems
6. Urban Design
   - Architecture
   - Structures and construction systems
7. Risk Mitigation & Climate change
8. Sustainability & Long-range planning
9. Project & Construction Management
10. Energy and energy systems
    - HVAC, including co-generation and tri-generation
    - Renewable and passive energy
    - Smart grids

In a world with an ever growing population, while energy requirements are increasing, the resources are diminishing. Renewable energy sources, such as wind energy, solar energy, biomass energy, geothermal energy, etc., have minimum impact on environment. Global warming and related depleting non-renewable energy sources have compelled the scientists to focus on environmentally friendly energy resources. Recycled materials as well as optimization of water use are other important issues for a global sustainability. Innovative technologies for a sustainable world should be addressed more and more. The special features of innovative technologies involving wind and solar energy; heating, ventilating and air conditioning systems; lighting systems; optimized water material use, must be encouraged to promote sustainability. The burning of fossil fuels, such as coal and oil, and deforestation have caused the concentrations of heat-trapping "greenhouse gases" (GHGs) to increase significantly in our atmosphere. Actions that reduce greenhouse gas emissions can have positive impacts on all of these factors. Sustainable, climate friendly actions can have positive benefits, including reducing costs for residents and businesses, saving energy and water, reducing waste, and preparing for the future and potential impacts of climate change. Therein lies the potential to build urban resilience.

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# MAKE SPACE
## OBSERVATIONS ON GENDERED USE OF PUBLIC SPACE

**Sadhya Bhatnagar**

It has always been intriguing (and disappointing) to see a gendered claim of certain spaces in the city. This photo essay is a basket of such observations collected over time from the places I have lived in or travelled to. As I look through the lens of gender, I remember a remark by a gender studies researcher---women are always in transit mode. They are not seen idling on streets and nukkads like men. They do not take afternoon naps on benches in parks. In fact, they are seldom seen 'enjoying' the city as much as their male counterparts.

**Men Serve Men**
A traditional naai ki dukaan alongside an on-the-wheels paan shop. A small economic ecosystem, devoid of the other half of the population.

*Dwarka, Delhi*

**Good Girls Study Everywhere**
Groups of women at a college campus, mostly spotted deep into their books.

*Thiruvananthapuram, Kerala*



**Men Run The Show**
A typical off-the-highway hookah and chai stop run by the men of the family. All such shops, including the ones located in local marketplaces, were run and frequented by men.

*Aswan, Egypt*

**Morning Routines**
A street food cart, one of several local haunts of men on their way to work in the morning.

*Alwar, Rajasthan*



**Bread Earners**
Scenes from Malakhera Bazaar, where, on an architectural field trip, I found myself to be one of the only three women occupying the particular stretch of the street.

*Alwar, Rajasthan*

**Smoking is Injurious to Women**
A beedi and paan shop in my locality, about which I have seldom seen women standing and smoking. Subconsciously, I realise I have avoided stepping too close to this spot--what if a neighbour walks by? But I don't smoke at all! Wouldn't want to give the neighbour any ideas.
The structure next to it is a small police chowki occupied by male constables.

*Dwarka, Delhi*



**Regular Epicures**
Business owners, workers, customers, and passersby at a Gujarati sweet shop. The shop might have been a surprise to see in the region, but the gender ratio was not.

*Kochi, Kerala*



**Night Lives**
Past a certain time at night, I could see men , alone or in groups, occupying the sidewalks. If there were any women, they were accompanied by family.

*Fort, Mumbai*

**Top:**
**Laxman Rekha**
10 years ago, this shop opened up on the corner of the local market to much opposition from society uncles and aunties. Women are not only not seen buying anything from this shop, but they also give the entire area a wide circumference while walking past.

*Dwarka, Delhi*

**Bottom Left:**
**Group Therapy**
I am a little sceptical to categorise this as gendered use of space, as we hardly see women lounging in parks. When we do see them though, it is mostly in closed groups for short durations, especially during winters.

*Dwarka, Delhi*

*All images courtesy:* **Author**



**Sadhya Bhatnagar** completed her B.Arch in 2019 from the University School of Architecture and Planning (USAP), New Delhi. An architect and a writer, equipped with creative and collaborative design thinking skills, her writing encompasses architecture, travel and beyond. She is currently working as Senior Communications Manager at Epistle Communications.
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# STROKES THAT
# CONNECT

## Ar. Swathy Subramanian

When you enjoy and do live sketches at various places of historical significance, you naturally develop a deep connection with the building and the context. Being a heritage conservation architect, I often travel and go to places and monuments of historical significance. It gives me great joy to do live sketches at historical sites while sitting quietly in the grounds and capturing the spirit of the places. It gives a deep understanding of the stylistic features, scale, proportion, materials, and techniques. After working on the UNESCO world heritage nomination dossier for "Sacred Ensembles of the Hoysalas," I've developed a strong interest in Indian temple architecture. Because of that, I recently visited the spectacular cultural landscapes of "the Chalukyas" in Badami, Aihole, and Pattadakal. The spiritual visit to the land of the Cholas was also memorable. Capturing the scale broadens one's understanding of the rich Dravidian temple architecture. The sketches also cover buildings we restore at the INTACH Bengaluru chapter, such as the Fort High School. A conservation architect often sees more structural defects in buildings than aesthetic ones. I use my travels to nurture my understanding of Indian architecture and our deeply rooted traditions, which are very valuable.

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Ahilya Fort at Maheswar
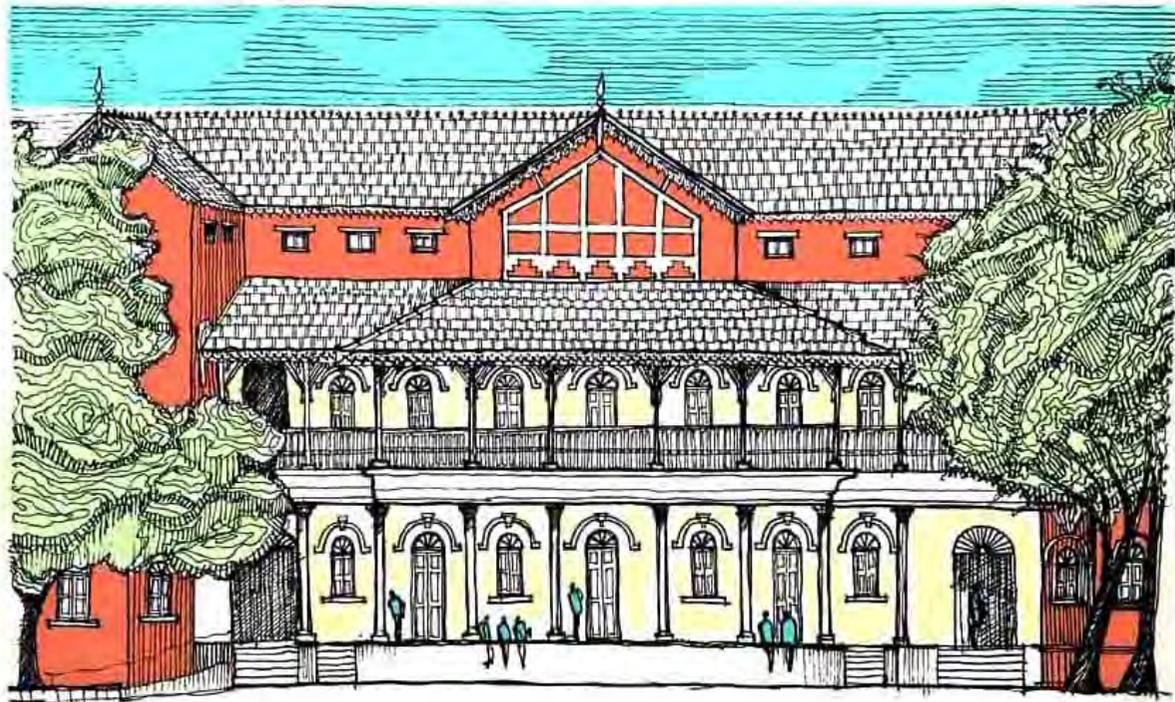
Fort High School Bengaluru restored by INTACH Bengaluru Chapter



Live sketch at Bhutanatha Temple, Badami, North Karnataka
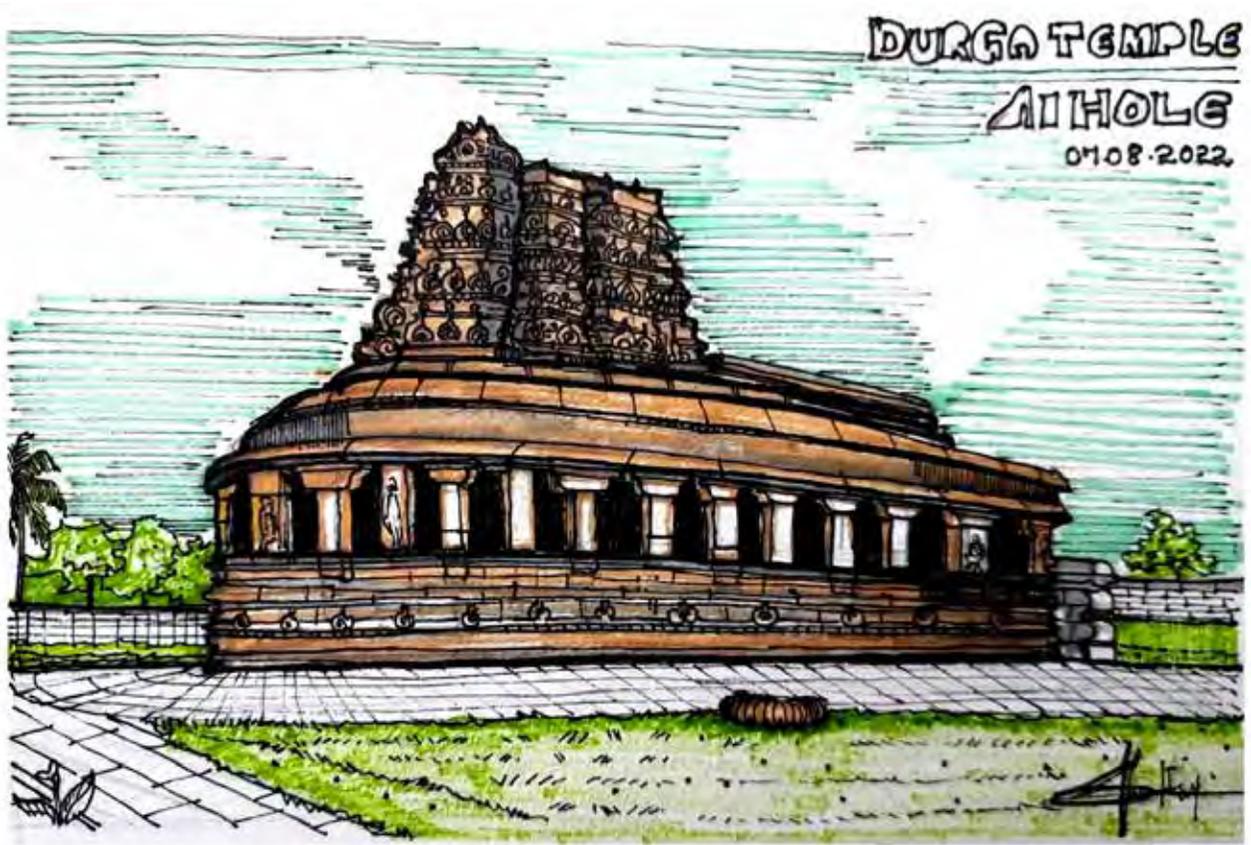
Live sketch at Durga temple, Aihole
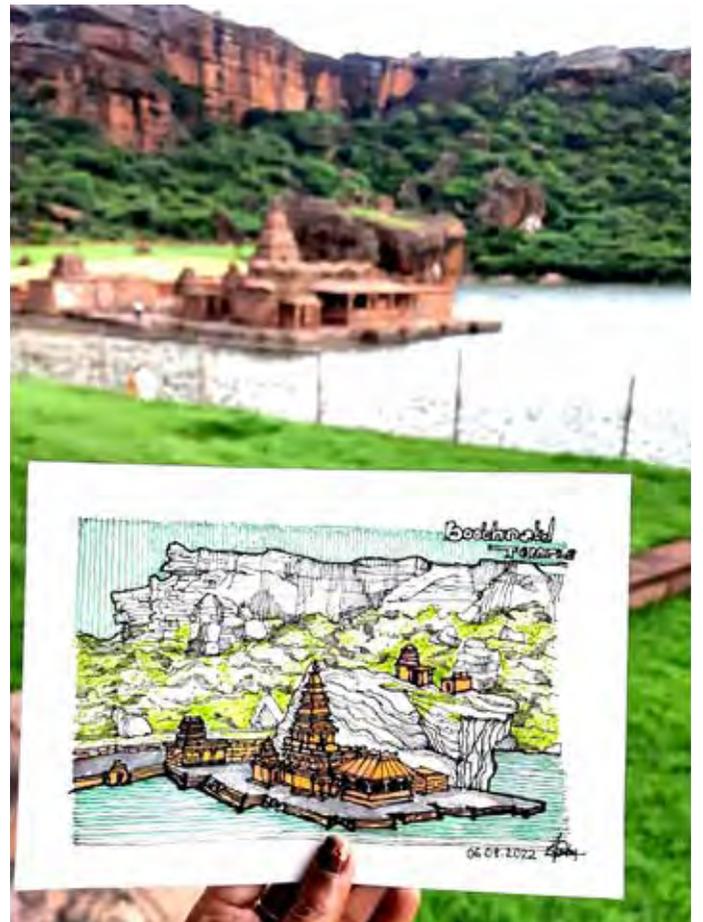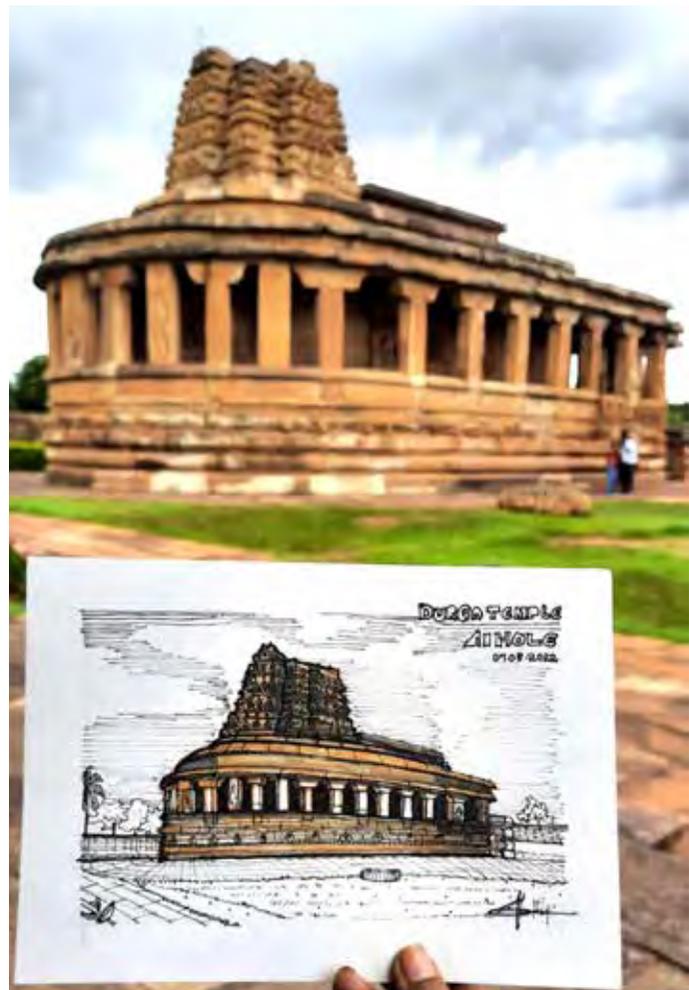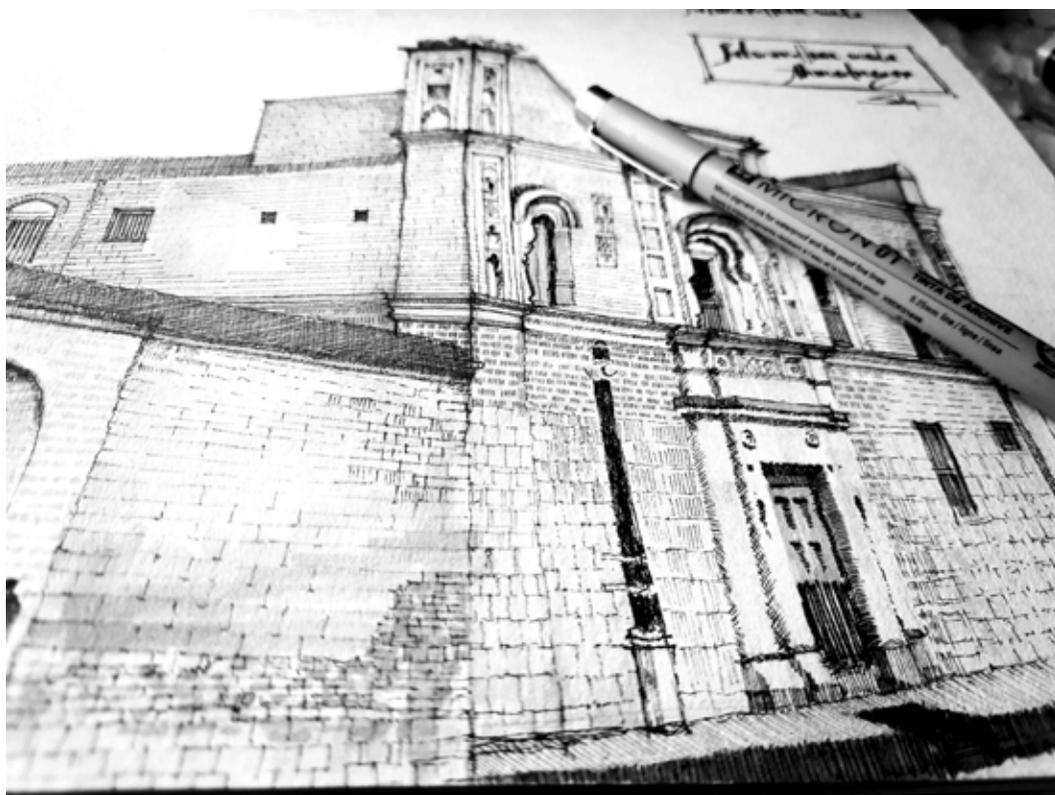
Live Sketch of Brihadeeswara Temple Tanjavur



Live sketching at Bhutanatha Temple, Badami, North Karnataka

Live Sketching at Brihadeeswara Temple, Thanjavur



Live sketching at Durga temple, Aihole

Patwardhan Wada of Ahmadnagar
Maharashtra

Sketch of Dewal Darbar Palace Complex at Askote, Pithoragarh, Uttarakhand

Gadodia Market at Old Delhi (Sharjahanabad).

**Ar. Swathy Subramanian,** is a heritage conservation architect who earned a B.Arch from RIT, Kottayam, Kerala, and a master's degree in Architectural Conservation from SPA, New Delhi. She works as a conservation architect with the Indian National Trust for Art and Cultural Heritage (INTACH) Bengaluru Chapter. Her work has been instrumental in the preparation of the UNESCO nomination dossier "The sacred ensembles of the Hoysalas" by the Bengaluru chapter of INTACH. With INTACH, she restored public projects such as Fort High School, Colonial railway stations in Bengaluru, Chamaraja memorial hall Shimogga, and many others. She has experience in the preparation of the conservation report for the Dewal Darbar Hill Palace complex in Askote (Kailash Manasarovar route), Uttarakhand, and has worked on the Muziris and Alappuzha Heritage Project, Kerala. She is a co-founder of conservation practice, EZHA, which focuses on building restoration, retrofitting, historic interiors, urban conservation management plans, as well as research and documentation.
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# AN ENDURING
## IDEA

**Ar. Amit Khanna**
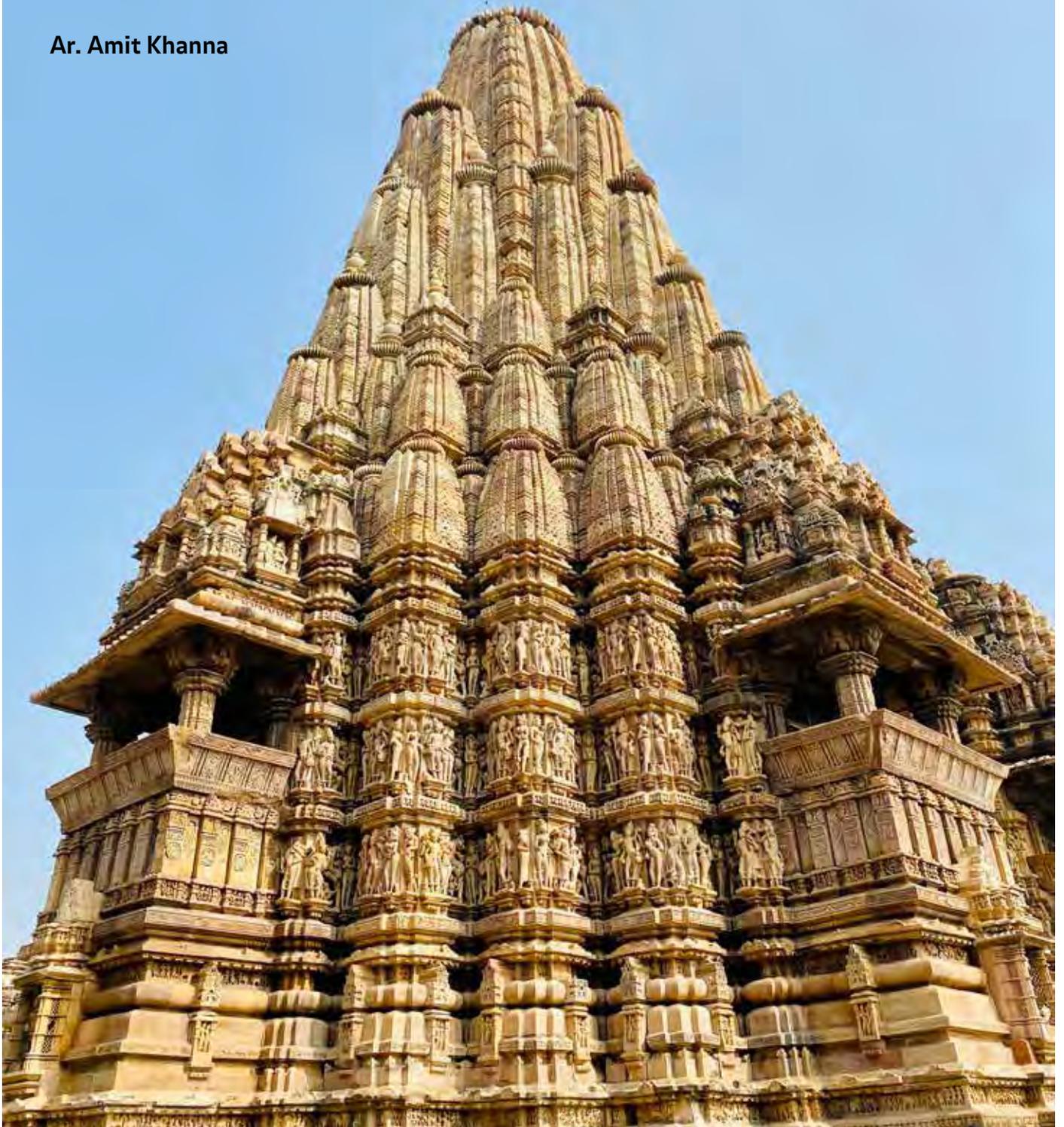
A succession of shikharas made by a succession of kings

Our architectural heritage is a glimpse into living history.

As architects, we are often collectively content to create our own narratives around the relative importance (or lack thereof) of buildings. This is pointedly true for the contemporary era, where a building's worth is deciphered through many things, including the antecedents of those who designed, built and photographed it.

However, what is to be made of the kind of architecture that endures despite every possible attempt by man and nature to obliterate it. History tells us that the winners write the stories of battle. Buildings razed down by conquests are never really the subject of history books. The quwwat-us-Islam mosque in Delhi, cobbled together from the remains of destroyed Jain temples is an inelegant assemblage, but whose ongoing presence has been etched into history. Simply by virtue of having survived.

I have always maintained that architectural heritage is the accidental aggregation of the buildings that no one had the courage to bring down. We have the Lodi tombs, the Buddhist stupas and the Imperial era palaces, simply because every generation found a reason to keep them. But what of those that time forgot?

For those of us used to a bustling metropolis and a chaotic airport, landing in Khajuraho can be almost surreal. We emerge from what is the solitary aircraft on the entire tarmac and proceed to an airport terminal that seems disproportionally large. It is standard fare, all curtain glass and exposed metal truss work, the South Indian granite flooring probably wondering what it's doing in Madhya Pradesh.

Our enthusiastic driver makes short work of the drive to the hotel, zipping past ambling locals. He helpfully points out that road development is being done to spruce up the city for an impending G20 summit. It's done wonders for the city, he claims while using a ring road around the old settlement to get us to our lodgings on the other side of the tiny city.

Khajuraho is home to just 30,000 people and it shows. The town doesn't feel overwhelmed by people, vehicles, garbage, tourists or anything that plagues the ordinary North Indian city. The roads are clean and wide, the people are friendly and courteous. There is no rush for anything, something I find out at my own expense not short after walking into the city centre, keen to grab a bite before seeing the evening sound and light show. Upon asking the waiter what he can get the chef to jostle up in the next ten minutes, he gives me a wry smile, pitiful of my lack of time, almost admonishing me to relax in his city.

Having quickly dispensed with the surprisingly excellent meal, we head off to the sound and light show. It's bitterly cold and a dense, pure, winter fog envelops the few dozen of us lined up on the western edge of the gardens. A solitary temple is bathed in the glow of the floodlights, an eerie start to the absolutely fascinating history lesson of the Chandelas, a dynasty of successively ambitious kings that built upon the lessons of their predecessors to create one of the most fantastic group of temples that exist on the face of the earth.

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Another view from the Chausath Yogini Temple to the South


Framed views
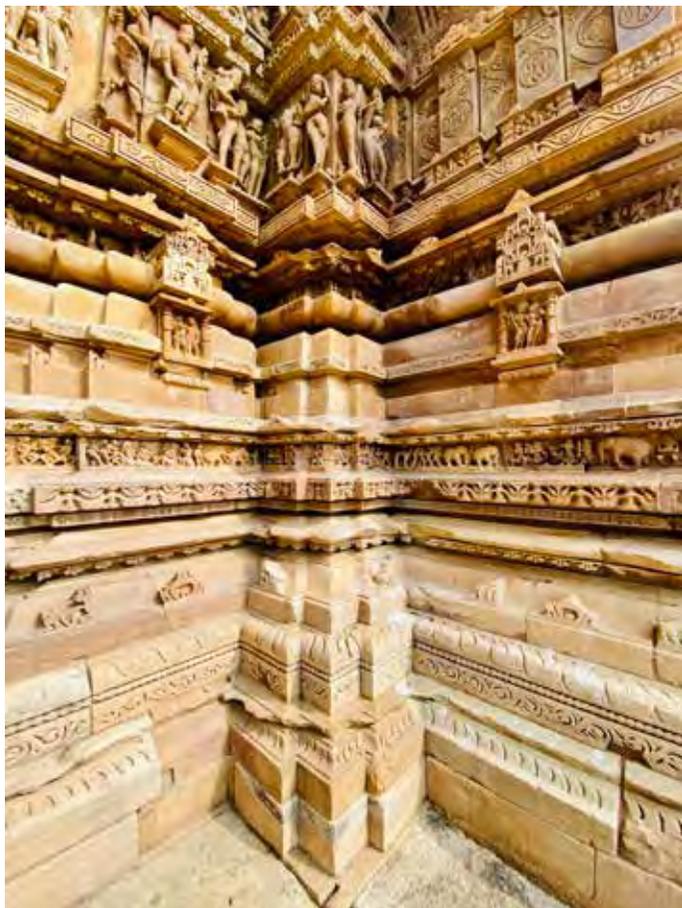
Junction detail


Seen in silhouette, the most powerful imagery of the temples

Shiva and Parvati - a recurring scuplural theme as man and wife in an embrace

Over a revenue-rich period of 225 years, the dynasty paid for the construction of 85 exquisite temples, culminating in the Kandarya Mahadeva, an enormous and profusely detailed stone edifice, the cultural equivalent of the Taj Mahal, or the Hagia Sophia in its place as the pinnacle of a civilizations' efforts of leave their mark in history. Forgotten for the better part of 700 years, the temples are now a UNESCO World Heritage Site.

Early the next morning, we head to the Western Group of Temples. A new entrance and formalised procession route have been laid around an existing lake and the effect is to heighten the senses in anticipation. ASI's modern online payment system is quick and efficient and we breeze through. We resist the temptation to head straight for the Kandarya, opting instead to follow the chronological path and start with the Lakshmana Temple.

Although I am sure I was taught all about temple architecture in my student years, I struggle to decipher the logic of the structure. With 20 years of making buildings now showing on my graying temples, the construction system is of equal interest and for a minute I am dumbstruck by the sheer weight of the thing. It's made in stone - all of it.

The plinth is a linear exaggeration, both in terms of scale and in the visual elongation of it by dividing it into a striated layering of decorative courses. The mildly pinkish granite plinth is a sensible choice, since the softer sandstone used for the upper floor would have quickly eroded. Unsurprisingly,

Sound and light show enveloped in fog

The earliest structure on the site

the stone steps are not in the standard 6"12" format. They require effort to ascend, and the focus shifts from the temple to the climb atop the plinth.

The main temple has a fascinating exterior perimeter plan. It moves in and out, animating the facade and while trying to separate the structure from the interior volume, the inner structural logic slowly reveals itself. The stone columns are interlocked at 45 degrees in both directions and the inner sanctum is also buttressed on the flanks. A simple room within a room, but beautifully proportioned and beautifully sculpted. And the surfaces are a book unto themselves.

There are hundreds and hundreds of hyper realistic human figures carved into the three sides of the temple. Famously, they are in poses of everyday human activity fleshed out in delicious detail. The quality of workmanship remains consistent in the subsequent temples we see, moving counter clockwise through the gardens.

It is not very busy. The gardens are empty, sunny and tempting for a siesta. However, mid-morning naps are the preserve of the nobility and the Kandarya beckons. It sits at the corner of the gardens, the third in a row of successively larger temples, made by successively ambitious kings. It's the tallest and largest here, 116ft and covers a footprint of over 6000SF. Beyond saying that it has to be experienced to be understood, there is little of a note to write here that hasn't been written before. It's astonishingly well made and that leads to me my larger epiphany about this trip.

The rear of the temples, with focus drawn to a solitary niche at eye level

The rich detailing in the honey coloured sandstone



The shadow line created by the area of human use, separating the plinth from the shikhara



The sinous rear elevation of a temple in the eastern group



The smaller shrines have been extensively repaired

The sun sets over the Madhya Pradesh landscape



Visual linear elongation of the plinth through striation

The Khajuraho temples were essentially made by administrative will, I.e., they were the product of government contracts. As is common with such projects, they would have required the largesse of the prevailing king and that bit is easy in retrospect - a client with enough money and a desire to be associated with the divine. It's a win-win for the king.

Fascinating though, is the proficiency and perfection with which these buildings were executed. All aspects of the project were top-notch - the planning, the raw materials, the skill level of the builders, the execution and the attention to detail. As we all know, specifying the design and getting it built are two completely different things.

Even more fascinating to me, though, is the continued consistency of proficiency and perfection that we see in successive temples of that era. That means that not only was the knowledge base being preserved and passed on, it was being expanded while reminding steadfastly true to the original intent. All the temples have a mind bending level of exactness in the proportion that is carried through by multiple generations, through hundreds of years.

It is easy to reflect upon this and wonder why we need to call ourselves a "creative" profession, when all it takes to build well is to follow the lessons of the past. Or are we still too busy trying to effectively solve new typologies? Have we solved urban housing for instance? Perhaps when we have, it could be codified and given to self-replication.

After the Hindu kings of the 12th century, there were few patrons for these structures and the age of building temples in the region came to an end. However, even the most ardent of conquerors would balk at unleashing their destructive forces on the Kandarya. The temple architecture of this epoch, therefore, holds a valuable lesson.

When building, do it in such a way that future generations see no reason to take it apart and do it again. Not only will you be doing something sustainable, you will have left your mark on the sands of time.

*All images courtesy:* **Author**

**Amit Khanna** is an architect, urbanist and educator. The work of his firm integrates architecture, construction and sustainability, producing award-winning and globally recognised buildings. He is a widely published author and photographer, and his special focus is on the transformation of cities. He was trained at SPA & Oxford.
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# EDUCATION FOR SUSTAINABLE
## BUILT ENVIRONMENT

**Ar. A.K. Jain**

**Figure 1:** Integrated knowledge system: sustainable development brings together community, critical and classical knowledge, which need to be addressed in relation with each other.
*(Source: Author)*

### Introduction
The domain of architectural education must reverse the calcifying and paralysing of the structure of patriarchal colonial practices to which it has been held captive. Meritocracy has backfired, creating a new form of educational, social and economic exclusion, exacerbating inequality, elitism and individualism.

The professional education of those engaged with the built environment must link closely with the sustainable development and rapidly changing ICT based pedagogy and practices. Equity-based benchmarks need to be developed in place of meritocracy. Education technology (ed. tech.) and digital pedagogy can help in all-pervasive learning across space and time. Cognitive, social, emotional and metacognitive functions can mainstream complex political, social, economic and environmental issues in education and practice. Dynamic and adaptable curriculum and spaces can allow experiential, outdoor, community and place-based learning to dream, discover, design and do.

### Education for Sustainable Development
The sustainable development goals (SDG) target 4.7 acknowledges the critical importance of education for sustainable development (ESD), which includes mainstreaming human rights, gender equity, peace, non-violence and appreciation of cultural diversity. This involves the integration of community, critical and classical knowledge systems. At the core of sustainable development in education and practice is an interdisciplinary and integrated approach to various goals and targets, such as linking SDG 1 (no poverty), SDG 2 (zero-hunger), SDG 11 (sustainable cities and communities) and SDG 13 (climate change). The emphasis is on provoking empirical thinking that underpins challenges and understanding their local and specific contexts, as universal discourses deal with fringe issues. This means a transition among knowing, thinking, valuing and acting. This needs cognitive capacities and skills in order to solve specific problems with an interconnected motivational, volitional and social abilities.
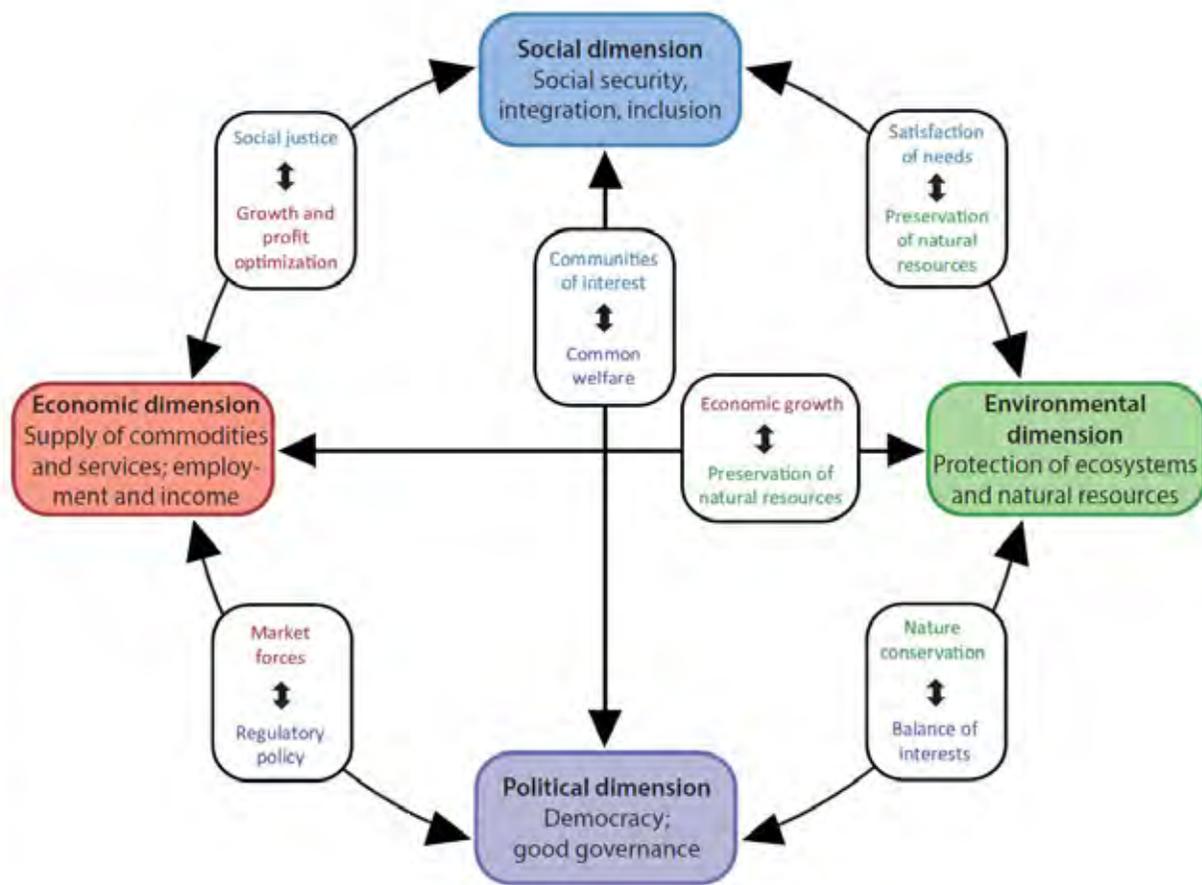
**Figure 2:** Interconnected dimensions of sustainable development: towards developing sustainable solutions. *(Source: UNESCO/ MGIEP, 2017)*

According to the UNESCO/MGIEP (2017), the critical competencies for sustainable development include the following:

1. Acquiring knowledge
2. Solving issues, problems and conflicts
3. Thinking critically
4. Communicating and negotiating
5. Dealing with systems
6. Facing the future
7. Reflecting on values
8. Participating and collaborating
9. Changing perspectives
10. Thinking and acting inclusively
11. Showing solidarity and responsibility

In a world of rapid changes, it is a challenge to bridge the gap between practice and new skills. This necessitates embedding lifelong learning and development of competencies with specific reference to the context. Critical skills are necessary to convert knowledge into reflection, concepts and action.

To take up adequately and effectively the task of a sustainable built environment the learning can be categorised into 'must', 'should' and 'could' categories. The foundation of learning comprises reading, listening, discussing and questioning and its pillars are- communication, competence, clarity and creativity.

In the context of new challenges, the traditional role of an architect, planner and environment professional is changing. He/ she is more of a catalyst, a facilitator and a bridge between the people, politicians and the government.

**Soft Skills:** Knowledge has two sides: one is hard thinking, which tends to be logical, precise, exact, specific and consistent. It is like a spotlight-bright, clear and intense. However, its focus is narrow. The other is soft thinking, which is like a floodlight. It is more diffused, not as intense, but covers a wider area. Soft skills trigger one's own thinking and search for connections among things, rather than on their differences. Everyone has a background of soft thinking - mythology, metaphors, dreams, poetry, plays, etc. which can be crossbred with hard mediums. The objective is to convert a layman into professional.

A balanced combination of hard and soft skill can help to transform ideas or technologies into social artefacts and sustainable development.

**Education Technology and Digital Pedagogy:** The world is passing through the fourth industrial revolution. ICT, GIS tools, digital platforms, smart, intelligent and interconnected processes, blockchain, discrete optimisation, algorithm, AI, big data, etc. are changing rapidly the education and practice of architecture, planning, design, construction
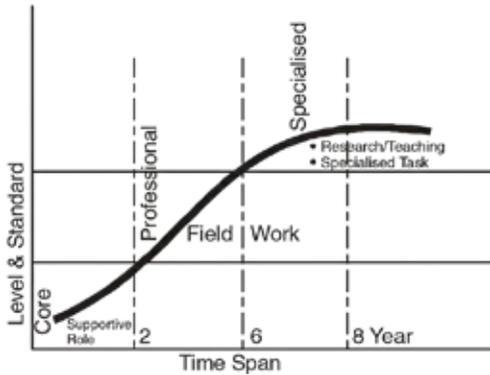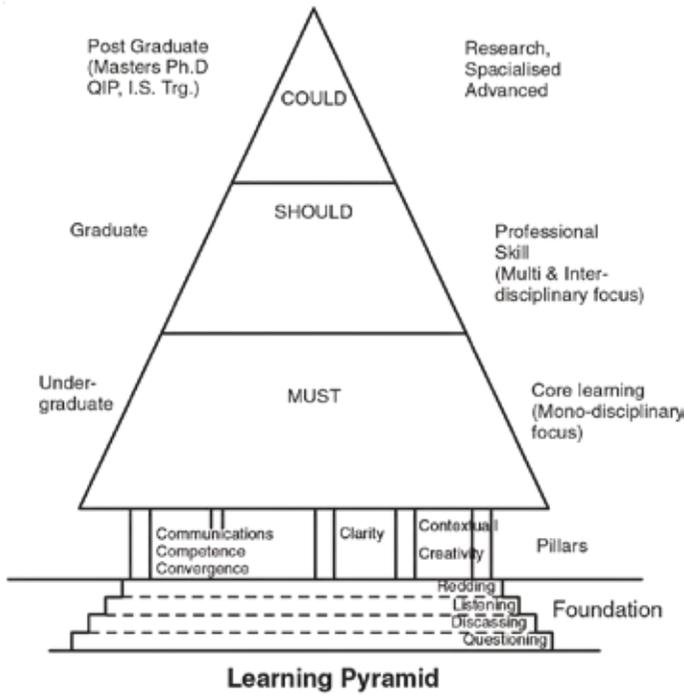
**Figure 3:** Learning Pyramid.
*(Source: Author)*
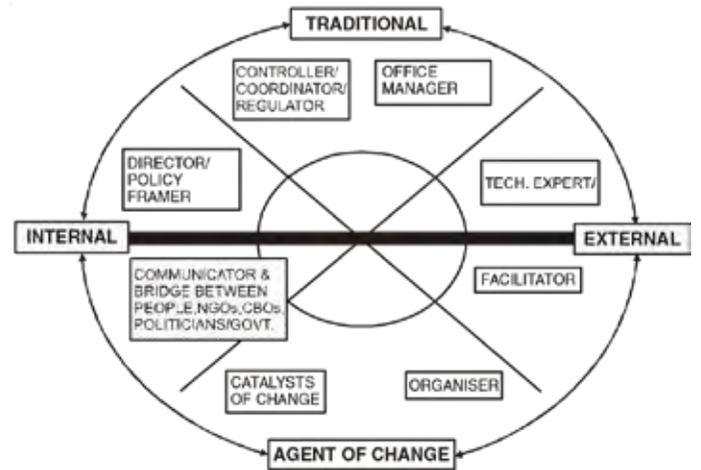


**Figure 4:** Changing Role of the Professional
*(Source: Author)*

and management. The shelf life of architects, like software engineers, has drastically reduced, unless they continuously and rapidly learn, adapt and change. As such, the education and the syllabuses should be dynamic and changing.

Some of the critical areas in the field of built environment can be seen in Tables 1 and 2.

## Conclusions

Prime Minister Narendra Modi said *'I believe that IT + IT = IT. That means Indian talent and information technology is equivalent to India tomorrow'.* India is on the path of massive educational transformation and development, leading to a sustainable built environment. For this, it is necessary that the education for sustainable development is restructured with equity-based benchmarks, adaptive and dynamic curriculum and with ed tech and digital pedagogy, which enables one to dream, discover, design and do.

Table 1: **From Knowledge to Action**
*(Source: Author)*

| Learning | Skill Development |
|---|---|
| *Knowledge* | Knowledge—Knowing the 'Unknown'<br>Information System-digital, IT based ground truth<br>Processes and technical knowledge<br>Policies, principles and practices<br>The purpose, position and problem |
| *Reflective Observation* | Comprehension, Interpretation and Understanding<br>Analysis of issues<br>Interfacing environmental, technological, legal, institutional, social and financial aspects |
| *Valuing and Conceptualisation* | Conceptualising and Abstraction<br>Vision<br>Concept Development, Design and Plan<br>Communication, public consultation/participation |
| *Action* | Thinking to Acting and Interacting<br>From overview to specific and contextual<br>DPR/program/schedule/phasing<br>Management and Institutional Framework<br>Implementation/CPM<br>Environmental, technological, legal, institutional and financial sustainability<br>Delivery<br>Monitoring and MIS |

Table 2: **Education, Technology and Digital Pedagogy for Built Environment**
*(Source: Author)*

| ICT Enabled Fields | Some Specific Key Areas |
|---|---|
| *1. Architecture, Planning, Design and Construction* | CAD and CAM enabled Architecture, Planning, Design and Construction<br>Integrated Digital Planning, Conservation of Land, Natural Resources, Heritage, and Environment<br>GIS, GPS, Remote Sensing, Total Station/Drone/ Satellite Surveys, Photogrammetry<br>Big Data Analytics, ERP Solutions<br>EIA, Heritage/Transport Impact Analysis, Experience Simulation, Concept Generating Matrix, Morphological synthesis, LiFE Platform, Digital Ledger and Dashboard<br>Environmental Management<br>Smart Building, Parametric Design, Morphotectonic Strategies, Animation, Simulation, Algorithm and Equations, 3-D Modelling, Digital Fabrication, Morphogenic Geometry, Biomimicry, Adaptive Systems, NURBS Curves and Surfaces, Spline Topology, Voronoi, Genetic Computation, Fuzzy Logic, Robotics, etc.<br>Building Information Modelling<br>Digital Land Information System, Digital mapping, SDI, Geo-portal, GIS based property records, plans and transactions<br>Online building plan approval and clearances |
| *2. Energy* | Common Digital Platform<br>Energy networks, smart grids, Smart meters, Smart buildings<br>Renewable energy<br>Electric vehicles, Green Hydrogen<br>Power quality monitoring<br>Energy conservation, Storage and efficiency<br>Bionic Controls, Passive Evaporative Draught Cooling, Earth Air Tunnel<br>Intelligent management/maintenance, MIS |
| *3. Public Utilities* | Common Digital Platform<br>SCADA (Supervisory Control and Data Acquisition)<br>ERP Solutions<br>Intelligent water and sewerage networks with minimum losses and leakages<br>Intelligent metering, billing and payment<br>Waste Recycling<br>Plug the Non-Revenue Water (NRW) losses<br>Identifying leaks using non-invasive techniques and advanced analytics by managing the pressure in the network at pumps and valves, which reduce energy consumption |
| *4. Smart mobility* | Transit Oriented Development<br>Real time congestion information<br>Simulation modeling and analysis<br>Smart cards, driverless vehicles<br>Smart signals, traffic controls, variable signage, mobile enabled real time maps/routes, way finding, etc.<br>ICT enabled traffic control, vehicle safety, communication, Dynamic Regional Network Modelling, multi-modal integration<br>Safety and security, accident monitoring, forensic analysis<br>Infrastructure integration, Smart City Pole<br>Digital Taxi/Car/Bus/Auto Pools<br>Maintenance, MIS and management |
| *5. Intelligent Community Frameworks* | Digital Intelligent Community Planning<br>Networked Education, Health, Recreation and Other Facilities<br>Digital Data on Residential Types, WFH, Hostels, Night Shelter, Social Rental Housing, etc. |

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**Ar. A.K. Jain** is alumnus of SPA (1971) and visiting faculty (since 1980), worked as Commissioner (Planning), Delhi Development Authority and as a member of the Committee of the Ministry of Housing and Urban Affairs on the DDA (2015). He was a member of UN Habitat (2007-12). Author of several books, he was awarded 2nd Urban Professional Award 2014 at World Urban Forum in Medellin, Colombia, IBC Lifetime Achievement Award (2016), Living Legend (2022) by the Indian Institute of Architects (NC) and the Lifetime Achievement Award by the Smart Habitat Foundation (2022).
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# IIA NATCON '22
# LATTICE
## AT RAIPUR, CHHATISGARH

**"Lattice"** was the theme of this year's IIA National Conference which was a metaphor for the current state of architecture in India. Architecture in India evolved in ways similar to those of lattices. At the Conference, we looked into how we design buildings, and how, as architects, we react to the tangible and intangibles of a project and learn from each other's experiences and processes. IIA NatCon was an attempt to look beyond the newness of elements in architecture and instead to make architecture more relevant to today's times. The National Convention 2022 was organized by IIA Chhattisgarh Chapter on 6 - 7 January 2023 at Pt. Dindayal Upadhyay Auditorium, Raipur, Chhattisgarh.

The event was spread over two days of technical sessions lined up with inspirational architects from across the country, sharing their experiences and ideas with the attendees and cultural events lined up in the evening for interaction among the different architects from across the country.

Awards of Best Chapter, Best Centre, Best Sub Centre and Commendation Certificate

### Inauguration Ceremony

The inaugural session of NatCon 22 started with a soulful Ganesh Vandana performed by tribal girls, followed with the lighting of the lamp, following tradition, in the presence of IIA President Ar. C.R. Raju, IIA Jt. Hon. Secretary, Ar. Ashutosh Kr. Agrawal, IIA Jt. Hon. Secretary Ar. Leena Kumar, IIA Jt. Hon. Secretary Ar. Satish Mane, Immediate past President of IIA, Ar. Divya Kush and IIA Chhattisgarh Chapter Chairman Ar. Raj Prajapati. The welcome address was given by Ar. Raj Prajapati who briefed about the activities of IIA at Chhattisgarh and elaborated the two-day event activities to the August gathering. Ar. C.R. Raju President IIA threw light on the overall IIA activities and also guided about the significance of NatCon and extended his best wishes for this NatCon -22 to all the office bearers, council members, chapter chairman, delegates, students, media representatives, sponsors and participants of exhibitions. This NatCon 22 inaugural ceremony was privileged to have MLA Shri Vikas Upadhyay Ji who emphasized the vital role architects have played in building the nation and also shared his views about the development vision of Chhattisgarh and the role and responsibility of Architects to accomplish this vision.

IIA also presented the *Baburao Mhatre Gold Medal* for life time achievement in the field of architecture to Ar. Prakash Deshmukh of Pune for his work in the field of architecture and *Madhav Achwal Gold Medal,* and in the field of architectural education, to Architect Jit Kumar Gupta for his contribution in field of architectural education.



Lightening of Lamp in Inauguration of NATCON 22

This inaugural ceremony was witnessed by 700 registered delegates, 220 students from NIT Raipur, Amity University, ITM University, Aesthetic Institute, Chanakya Academy, INIFD Institute and MAIC College. Representatives of 34 stall owners of the exhibition in-person apart from live streaming on social media watched by thousands of viewers across the globe.

Technical sessions were organized in five parts and the eminent speaker's list included Ar. Sameer Padora, Ar. Savitha Shetty, Ar. G.S. Matharoo, Ar. Prasanna More, Ar. Vivek Rathore, Er. Manjunath, Ar. Sachin Bawdekar. These technical sessions were spread over the two days.

Host of NATCON 22 Chhattisgarh Chapter Organising committee with Chairman Ar Raj Prajapati

## Awards

Day One of the event started with the inaugural ceremony, during which the *Baburao Mhatre Gold Medal,* for the year 2022 for Life Time Achievement in the field of architecture, was presented to Ar. Prakash Deshmukh from Pune for his work in the field of architecture, and the *Madhav Achwal Gold Medal,* for the year 2022 in the field of architectural education to Ar. Jit Kumar Gupta for his contribution in the fields of architectural education.

Ar. Prem Nath from Mumbai was awarded the *Baburao Mhatre Gold Medal,* for the year 2020 for life time achievement in the field of architecture. He was presented this award physically on Day One of NatCon 22.

## Technical Sessions

Following the presentation of the awards, were the Technical Sessions. The first speaker was Ar. Sameep Padora who presented his analysis of Mumbai housing of chawls and how it can become a stencil for a more inclusive and socially responsible housing for the future. He also talked about the projects his office is currently working on, with emphasis on the vernacular architecture of Mumbai. The next speaker, Ar. Savitha Shetty talked about how it is important to understand the way architecture is constructed, the effort and analysis that goes into design of structures and the detailing that is done to achieve the desired results. She also emphasized on her firm's philosophy of designing environments that are rooted in


Presentation of Babu Rao Mhatre Gold Medal to Ar. Prakash Deshmukh for the year 2022


Chief Guest of Inaugural Function MLA Shri Vikas Upadhyay


Presentation of Babu Rao Mhatre Gold Medal to Ar. Prem Nath for the year 2020


Memento to Speaker Ar. Gurjit Singh Matharoo


Presentation of Madhav Achwal Gold Medal to Ar. Jit Kumar Gupta for the year 2022


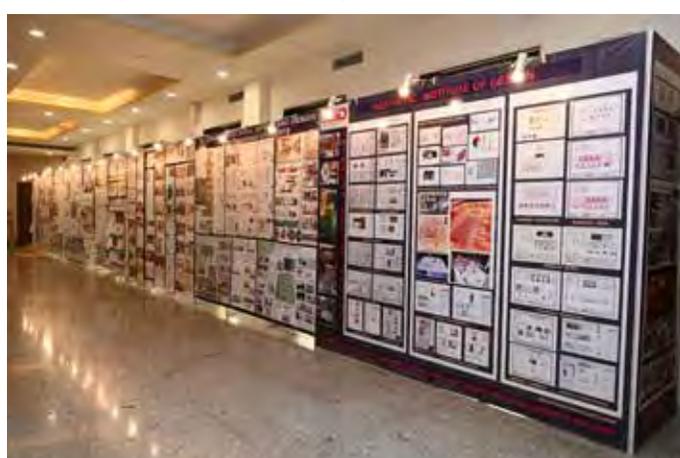Memento to Speaker Ar. Sandeep Bawdekar

Memento to Speaker Ar. Savitha Shetty


Bouquet to Speaker Ar. Prasanna Morey


Memento to our Platinum Sponsorer Shri Ramesh Agrawal GK TMT


Students Works Gallery

the earth, using the sun, wind and nature to create spaces that are suffused with light and contemporary innovations that draw from Indian traditions and spiritual metaphors.

The post-lunch session had presentations by Ar. Gurjit Singh Matharoo and Ar. Praveen Bawadekar. Ar. Gujit Singh Matharoo talked about his projects which revolved around how the site and client's requirements played an important role in the evolution of his designs, along with light and dynamics.

Ar. Praveen Bavadekar explained the evolution of design based on different parameters such as site and climate response. He shared his experiences on working with different typologies and scale and highlighted the use of sections and split levels to achieve design optimization.

Day 2 commenced with a presentation by Ar. Prasanna Morey. He inspired the delegates with the ways he conceptualized design, with modern materials. He emphasized on the role context plays in architecture and, how it can be the major force towards making spaces more connected with the surroundings.

This was followed by a presentation by Er. B.L. Manjunath. He talked about how structure and architecture are intertwined. He showcased projects where structure of the building played an important role in the overall architecture. He also emphasized that architects need to visit and experience architecture instead of looking at 2D photographs.

During the Technical Session, there were commercial presentations by Platinum sponsors, GK TMT. Saburi Ply, Magic Paints, Eurobond and Prince Pipes were the Bronze and Silver sponsors who delivered very informative and innovative product details and shared their views about the future trends.

### Students Gallery
Students from various design universities and institutions exhibited their work in the Student Gallery Arena and participated with enthusiasm and energy to express their ideas. This was an opportunity for the delegates who visited this gallery and appreciated the hard work and creativity of students.

### Heritage of Chhattisgarh
The heritage of Chhattisgarh and its culture was experienced firsthand by the delegates during the inauguration of the exhibition. The welcome extended to the guests at the auditorium entrance was enjoyed through the spell-binding performance of artists and dancers from the *Arpa-Pairy Ke Dhar Group* with traditional dances of Panthi, Karma and Gedi dance.

Welcome to Raipur Cultural warm welcome

National Council Meeting

Book Release DECODING Affordable Housing Ar. Jit Kumar Gupta


Inauguration of Building Material Exhibition. President IIA C. R. Raju Vice President IIA Jitendra Mehta and Chhattisgarh Chapter Chairman Raj Prajapati

## Book Release
Ar. Jit Kumar Gupta, awardee of the *Madhav Achwal Gold Medal* released his book at NatCon 22 titled *Decoding Affordable Housing: The Way Forward.*

## Exhibitions
*Lattice* had the attraction of the building material exhibition in which wide range of products were displayed in stalls which were decorated in beautiful and creative manner. This exhibition had G.K. TMT steel bars, Saburi plywood, J.K. White cement Magic paints, Eurobond, Prince Pipes etc. All the delegates learnt about upcoming technologies and new arrivals of innovative products and interacted and experienced the range, quality and applications in buildings.

## Gala Evenings
NatCon 22 had two memorable culture nights on both evenings at the *Babylon International Hotel.* The first night saw an electrifying performance by Arif and his vibrant instrumental band induced the delegates to dance.

The second evening started with a unique horse-dance presented by Ms Geeta Singh which was performed in darkness with LED lights wore by horse and the rider. There was also an orchestra by Shantanu.

Both evenings had a fellowship dinner with delicious continental and Chhattisgarh cuisine.

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Building Material Exhibition Visit of National team

JOURNAL OF THE INDIAN INSTITUTE OF ARCHITECTS

Students Participation in NATCON 22

Evening Dinner and Splendid Orchestra of Shantanu


Chattisgarh Cultural Heritage, Panthi Dance Warm Welcome

### Valedictory Ceremony

The Valedictory session commenced with the heartfelt speech of IIA Chhattisgarh Chapter Chairman, Ar. Raj Prajapati who shared the journey of preparation of NatCoN-22, with kudos expressed for the organizing team and gratitude to all members of IIA. Ar. Leena Kumar anchored the session for presenting awards and recognition, certificates and trophies to the selected participants. The session was concluded with a vote of thanks by Ar. Saurabh Rahatgaonkar, Jt. Secretary, IIA Chhattisgarh Chapter.

*NatCon-22 LATTICES* will be remembered for its well-organized activities, hospitality and warmth of the entire organizing team of IIA Chhattisgarh Chapter. The knowledge, experience and views shared by the delegates will be beneficial for entire architects community.


Audiance

## Awards, Trophies and Recognitions presented during IIA NatCon 2022, Raipur.

| No | Award Name | Awardee |
|----|-----------|---------|
| 1 | **IIA Baburao Mhatre Gold Medal 2022** | **Ar. Prakash Deshmukh** |
| 2 | **IIA Madhav Achwal Gold Medal 2022** | **Ar. Jit Kumar Gupta** |
| 3 | **IIA Best Chapter Award 2022** | **IIA Kerala Chapter** |
| 4 | **IIA Best Chapter Runner-up Award 2022** | **IIA Telangana Chapter** |
| 5 | **IIA Best Centre Award 2022** | **IIA Calicut Centre** |
| 6 | **IIA Best Centre Runner-up Award 2022** | **IIA Navi Mumbai Centre** |
| 7 | **IIA Best Sub-Centre Award 2022** | **IIA Kota Sub-Centre** |
| 8 | **IIA Best Chapter Newsletter Award 2022** | **IIA Karnataka Chapter** |
| 9 | **IIA Best Centre Newsletter Award 2022** | **IIA Cochin Centre** |
| 10 | **Outstanding Member Award 2022** | **Ar. Sridhar Gopisetti** |
| | | **Ar. Noufal C Hashim** |
| 11 | **IIA Award for Best Regional Conference 2022 (Shared by 3 Host Chapters)** | **Central Regional Conference, IIA Madhya Pradesh Chapter** **Southern Regional Conference, IIA Karnataka Chapter** **Eastern Regional Conference, IIA Odisha Chapter** |
| **Recognition Awards for National Events** | | |
| 12 | IIA Award for hosting IIA Young Architect's Festival 2022 | IIA Calicut Centre |
| 13 | IIA Award for hosting IIA National Convention 2021 | IIA Telangana Chapter |
| 14 | IIA Award for hosting IIA National Awards 2020 | IIA Goa Chapter |
| 15 | IIA Award for hosting IIA Premier League (IIAPL) XI | IIA Tamil Nadu Chapter |
| 16 | IIA Award for Conducting IIA National Convention 2022 | IIA Chhattisgarh Chapter |
| **Recognition Awards for Chapter Events** | | |
| 17 | IIA Award for conducting Rajasthan Architecture Festival | IIA Rajasthan Chapter |
| 18 | IIA Award for conducting IIA Maharashtra Chapter Convention (MAHACON) | IIA Maharashtra Chapter & IIA Pune Centre |
| 19 | IIA Award for conducting IIA Tamil Nadu Chapter Conference (Namadhu Vizha) | IIA Chennai Centre |
| 20 | IIA Award for Outstanding performance of New Chapter | IIA Jammu & Kashmir Chapter |
| **Recognition Awards for Membershp Growth** | | |
| 21 | IIA Award for Chapter Membership Growth 2022 (in nos.) | IIA Kerala Chapter |
| 22 | IIA Award for Centre Membership Growth 2022 (in nos.) | IIA Chennai Centre |
| 23 | IIA Award for Sub- Centre Membership Growth 2022 (in nos.) | IIA Hisar Sub Centre |
| 24 | IIA Award for Chapter Membership Growth 2022 (in %) | IIA Odisha Chapter |
| 25 | IIA Award for Centre Membership Growth 2022( in %) | IIA Calicut Centre |
| 26 | IIA Award for Sub-Centre Membership Growth 2022( in %) | IIA Talegaon Dabhade Sub Centre |
| **Presidential Recognitions for Members** | | |
| 27 | Presidential Recognition for Public Interest and Awareness | Ar. Sandeep Patil |
| 28 | Presidential Recognition for organisation and conduct of Eastern Regional Conference 2022 | Ar. Rajkunwar Nayak Ar. Swopnadutta Mohanty Ar. Bibhuti Bhusan Mohapatra |
| 29 | Presidential Recognition for organisation and conduct of Central Regional Conference 2022 | Ar. Jitendra Mehta Ar. Sanjeev Bumb Ar. Vibha Saxena |
| 30 | Presidential Recognition for organisation and conduct of Southern Regional Conference 2022 | Ar. B.R. Mohan Ar. Shyam Sundar K. Ar. Rakesh K |
| 31 | Presidential Recognition for organisation and conduct of Young Architect's Festival 2022 | Ar. Gopakumar L. Ar. Brijesh Shaijal Ar. P.P. Vivek |
| 32 | Presidential Recognition for organisation and conduct of IIA National Convention 2021 | Ar. Udaya Shankar Doni Ar. Kuldeep Singh Ar. Koppula Muralidhar Reddy |
| 33 | Presidential Recognition for organisation and conduct of IIA National Awards 2020 | Ar. Amit Sukhthankar Ar. Milind Ramani Ar. Orty Soares |

| No | Award Name | Awardee |
|---|---|---|
| **Presidential  Recognitions for Members** | | |
| 34 | Presidential Recognition for organisation and conduct of IIA Premier League - XI | Ar. Yuvaraj Balaraman<br>Ar. Prasanna Pandian<br>Ar. Maheswaran Rajendran |
| 35 | Presidential Recognition for organisation and conduct of Rajasthan Architecture Festival | Ar. Tushar Sogani |
| 36 | Presidential Recognition for organisation and conduct of Tamil Nadu Chapter Conference (Namadhu Vizha) | Ar. Kurian George |
| 37 | Presidential Recognition for organisation and conduct of Maharashtra Chapter Convention (MAHACON) | Ar. Sandeep Bawdekar<br>Ar. Sandeep Khatpe<br>Ar. Jyoti Panse |
| 38 | Presidential Recognition for organisation and conduct of Northern Regional Conference | Ar. Ashish Gupta |
| 39 | Presidential Recognition for organisation and conduct of Punjab Chapter Conference | Ar. Sanjay Goel |

| No | Award Name | Awardee |
|---|---|---|
| **Certificates of Merit** | | |
| 40 | Chhatisgarh Chapter | Ar. Rhidul Sharma<br>Ar. Manish Pilliwar |
| 41 | Gujarat Chapter | Ar. Jyoti Gill<br>Ar. Jignesh Ishverlal Modi<br>Ar. Mauktik Shashikantbhai Trivedi |
| 42 | Haryana chapter | Ar. Shilpa S. Kumar<br>Ar. Sonia<br>Ar. Pulkit Gupta |
| 43 | Himachal Pradesh Chapter | Ar. Manuj Shardia<br>Ar. Vijay Thakur |
| 44 | Jammu & Kashmir Chapter | Ar. Harinder Arora |
| 45 | Jharkhand Chapter | Ar. Preety Vijay<br>Ar. Harsh Raj |
| 46 | Karnataka Chapter | Ar. Santhosh G.L.<br>Ar. Rakesh K.<br>Ar. Vajrakumar Bharat Mehta<br>Ar. Mueen Haris |
| 47 | Kerala Chapter | Ar. Noufal C Hashim<br>Ar. Monolita Chatterjee<br>Ar. Anoop K<br>Ar. Shobak Thomas |
| 48 | Maharashtra Chapter | Ar. Makarand Uttam Toraskar<br>Ar. Vinit Mirkar<br>Ar. Kapil Dwarkaprasad Kawale<br>Ar. Jyoti Rajeev Panse<br>Ar. Shilpa Sharma<br>Ar. Vandana Dhaval Pusalkar<br>Ar. Shailesh Prakash Dandane<br>Ar. Prativasi Bhavankar S. Govindarajan<br>Ar. Piyush Premchand Dugad |
| 49 | Northern Chapter | Ar. Anurag Bansal<br>Ar. Avanindra Batra<br>Ar. Amit Sharma<br>Ar. Suptendu Prakash Biswas |
| 50 | Odisha Chapter | Ar. Jyoti Shankar Ray<br>Ar. Gitikantha Dash |
| 51 | Punjab Chapter | Ar. Sarabjit Kaur Marwah<br>Ar. Nagendra Narayan |
| 52 | Rajasthan Chapter | Ar. Preethi Agrawal<br>Ar. Rekha Nemani<br>Ar. Abhishek Jain |
| 53 | Tamil Nadu Chapter | Ar. Babu Venkatesan<br>Ar. Raghavendran Rajagopalan<br>Ar. Karthick K.K.<br>Ar. Balamurugan Vijayaramu |
| 54 | Uttar Pradesh Chapter | Ar. Shalini Diwakar<br>Ar. Shubhendra Bajpai<br>Ar. Karan Nagpal |
| 55 | Telangana Chapter | Ar. Kuldeep Singh<br>Ar. Ravi  Bathula<br>Ar. Arun  Reddy |

# LIST OF AWARDEES OF IIA MEDAL FOR BEST OUTGOING STUDENT 2022

| Sr. No. | Name | Place | Nomination |
|---|---|---|---|
| 1 | School of Planning and Architecture | Andhra Pradesh (Vijayawada) | Shivani Singh |
| 2 | Amity School of Architecture & Planning, Amity University | Chhattisgarh (Raipur) | Karan Jain |
| 3 | Shantaben Manubhai Patel School of Studies & Research In Architecture & Interior Design | Gujarat (Anand) | Karankumar Vijaykumar Rajpurohit |
| 4 | Vyavasay Vidya Pratishthan's Indubhai Parekh School of Architecture | Gujarat (Rajkot) | Janhvi Multani |
| 5 | College of Architecture, Sardar Vallabhbhai Patel Institute of Technology | Gujarat (Vasad) | Mahima Patel |
| 6 | Rajiv Gandhi Government Engineering College | Himachal Pradesh (Kangra) | Shagun |
| 7 | Department of Architecture and Planning, Birla Institute of Technology, Mesra | Jharkhand (Ranchi) | Sohantika Kodiganti |
| 8 | Karnataka Law Society's Gogte Institute of Technology | Karnataka (Belagavi) | Shreya Sulgekar |
| 9 | BMS College of Architecture | Karnataka (Bengaluru) | Keerthika Sree M |
| 10 | School of Architecture, REVA University | Karnataka (Bengaluru) | Asha Sahaya Mary X. |
| 11 | SJB School of Architecture & Planning | Karnataka (Bengaluru) | Supreeth V |
| 12 | Acharya's NRV School of Architecture | Karnataka (Bengaluru) | Manogna Malempati |
| 13 | K. S. School of Architecture | Karnataka (Bengaluru) | Dhrual T Rudani |
| 14 | Dayananda Sagar College of Architecture | Karnataka (Bengaluru) | Samanvitha S |
| 15 | School of Architecture, Dayananda Sagar Academy of Technology & Management | Karnataka (Bengaluru) | Sahas V |
| 16 | Sir M. V. School of Architecture | Karnataka (Bengaluru) | Priyank Rana |
| 17 | NITTE Institute of Architecture | Karnataka (Mangalore) | Aysha Aiman |
| 18 | Manipal School of Architecture & Planning, Manipal University | karnataka (Manipal) | Archana Sivaprakash |
| 19 | SCMS School of Architecture | Kerala (Ernakulam) | Elizabeth Joseph |
| 20 | Al Salama Institute of Architecture | Kerala (Malappuram) | Salama Ummer |
| 21 | Nehru College of Architecture | Kerala (Palakkad) | Sneha Valsan |
| 22 | School of Architecture, College of Engineering | kerala (Thiruvananthapuram) | Siddarth Manoj |
| 23 | Marathwada Institute of Technology | Maharashtra (Aurangabad) | Pritesh Rajendra Jain |
| 24 | Academy of Architecture | Maharashtra (Mumbai) | Tanaya Nadkarni |
| 25 | Rizvi College of Architecture | Maharashtra (Mumbai) | Arunav Kumar Sinha |
| 26 | School of Environment & Architecture | Maharashtra (Mumbai) | Nikeita Saraf |
| 27 | Women's Education Society's Smt.Manoramabai Mundle, College of Architecture, L.A.D.College | Maharashtra (Nagpur) | Unnati Dhande |
| 28 | Marathwada Mitra Mandal's College of Architecture | Maharashtra (Pune ) | Sanyukta Kulkarni |
| 29 | School of Architecture & Planning,  KIIT University | Odisha (Bhubaneswar) | Preethika Agarwal |
| 30 | Piloo Mody College Of Architecture | Odisha (Cuttack) | Rakesh Kumar Mahapatra |
| 31 | Sri Sri University | Odisha (Cuttack) | Diganta Maity |
| 32 | National Institute of Technology | Odisha (Rourkela) | Rajdeep Saha |
| 33 | School of Architecture & Design, Manipal University | Rajasthan (Jaipur) | Priyam Sabla |
| 34 | School of Environment Architecture and Design TN-26 | Tamil Nadu (Cehnnai) | Sheena Annie Sabu |
| 35 | Measi Academy of Architecture | Tamil Nadu (Chennai) | Abhirami Devi M |
| 36 | Kongu School of Architecture | Tamil Nadu (Erode) | S Sharani |
| 37 | School of Architecture & Interior Design, SRM University | Tamil nadu (KANCHIPURAM) | Amrutha V |
| 38 | Sigma College of Architecture | Tamil Nadu (Kanyakumar) | Al Ameen S |

# NEWSLETTER JANUARY

## OBITUARY



**Ar. B. V Doshi**

We are extremely sad to report the demise of legendary
Master Architect Padma Vibhushan B V Doshi, on January 24, 2023.

We pay our homage and respects to Ar B V Doshi.

## GENERAL NEWS

During the valedictory of NATCON 2022, held at Raipur on Saturday 7 January 2023, Ar. C.R. Raju, President IIA, appreciated Team JIIA for its efforts to bring out the Journal continuously for the last 21 months, in its revamped format. The Team received unstinted praise from all those present for their tireless work to meet deadlines.

He ackowledged the JIIA Team for working without any expectations of accolades. And so naturally the quality of the Journal and the efforts of the Team have been appreciated by the entire fraternity. He held up the JIIA Team as an example of selfless teamwork.

Dr. Shilpa Sharma, member of the JIIA Editorial Team and Ar. Jyoti Panse, both from Maharashtra Chapter, with their Merit Certificates from with Ar. C.R. Raju, President IIA, for their performance and contribution to IIA during the last year.

Kalyan Dombivali Press Conference

## IIA Maharashtra Chapter Report – September to November 2022
### A brief report of various activities conducted by the IIA Maharashtra Chapter

1. Sangli Centre organized a 3-day event from 23rd to 25th September. It was a live session on the construction of brick domes with expert masons, engineers and architects.
2. Jt. Hon. Secretary Ar. Satishraj Jagdale was felicitated for best humanitarian services to Red Cross by the Hon. Governor of Maharashtra Shri Bhagat Singh Koshiyari in September.
3. Maharashtra actively participated in IIPL held at Chennai with 2 Cricket teams, 2 Badminton teams and 1 Table Tennis team, winning many laurels for the state. Maharashtra Blue Cricket team handed over the winning Trophy to the chapter chairman, Ar. Sandeep Bawdekar, in the presence of Pune Centre Executive Committee members.
4. Kalyan Dombivali Centre organized a seminar on Redevelopment Issues. The eminent speakers from Architecture, Legal and Banking sectors answered many questions from the audience and cleared their doubts. This event was held on 15th October.
5. Jalgaon Centre celebrated Architect's Day with great enthusiasm.
6. Similarly, the newly formed Talegaon Dabhade Sub Centre also celebrated this day with joy and active participation from its members.
7. October saw a programme organized by the Nashik Centre. In the Smart House Interior Expo, final-year Design toppers from 3 Architecture colleges presented their work to the invited audience on the 8th of October morning. In the evening, Ar. Niraj Doshi and Ar. Paras Netragaonkar from Pune presented their work. While Ar Paras does large landscaping projects, Ar Niraj has been awarded at National and International levels for his work. This programme was well-received by the audience.
8. CoA constituted a State level Committee to address the issues faced by architects at the local level. Ar. Sandeep Bawdekar – Maharashtra Chapter Chairman is the Co-convenor. Ar. Nilesh Dholakia – Brihan Mumbai Chairman, Ar Kaushal Jadia – Navi Mumbai Chairman, Ar Sandeep Khatpe – Pune Chairman, Ar Raviraj Sarwate – Nagpur Chairman and Ar Rasik Bothra – Nashik Chairman are the Committee members.


Ar Sandeep Bawdekar, Chairman, Maharashtra Chapter felicitating Dr Ujwala Chakradeo at Pune

9. Talegaon Dabhade sub centre Installation ceremony was held in October in the presence of Ar Satish Mane, Jt. Hon. Secretary, Nation Council and Ar Sandeep Bawdekar, Maharashtra Chapter Chairman. Office Bearers of other centres which are close by attended the grand function.
10. Initiative taken by Navi Mumbai centre – A Public Interest Litigation (PIL) was filed regarding Cidco selling Sports reservation land of 2.5 acres to builders. As a result, the High Court stayed the work.
11. Nagpur Centre had organized an Audio-Visual Presention by Ar Krishna Murthy from Navi Mumbai in October. This is the Golden Jubilee Year of the Nagpur Centre.
12. Nashik Centre organized the 3rd Edition of Nirmitee with Lifetime Achievement Award with the felicitation of senior architect partners Ar Kabre and Ar Chaudhari of the firm Kabre Chaudhari.
13. Sports continued to make news with the selection of Ar Omkar Kelkar, and Ar Neelam Sanghavi – both for Badminton and Ar Vipul Salvankar for TT being selected for ARCASIA. They won in Dhaka.
14. Ar Sandeep Patil from Kalyan Dombivali Centre acted as a whistleblower regarding misdeeds done at RERA by builders. This has blown open a scam which seems to be the tip of the iceberg. IIA members have given full backing to Ar Sandeep Patil for his actions. A press conference was also organized and as a result, wide coverage was given to this issue of obtaining RERA certificates based on fake papers. Many builders and their projects were stayed. Despite threats to the architect, he has continued his fight against corruption. IIA is giving complete support and including letters given to Police Commissioner requesting protection.
15. Kolhapur centre organized a session on archaeology with a presentation by Sachin Patil on the Conservation of Fort Panhala. IIA Kolhapur members also presented a report on 22 rural tourism destinations. This was on the occasion of World Architecture Day.
16. Kolhapur was also appreciated at YAF Calicut with Ar Santosh Ramane being recognized with Young Architects' Award 2022. He is the treasurer of the Kolhapur Center.

17. The teacher's Day programme was organized by Pune Centre in November. This year, Dr. Poorva Keskar and senior Architect, Suresh Athavale were felicitated for their contribution to the field of architectural education. Principals of architecture colleges and the college topper were also felicitated. The Chief Guest for this event was Dr. Ujwala Chakradeo, a well-known architect academician and also the Vice-Chancellor of SNDT University. This programme was held in the presence of Ar Satish Mane and Ar Sandeep Bawdekar.

18. Satara Centre organized an AV presentation by Ar Hiren Patel – HPA Ahmedabad in December.

19. Ar Arshad Shaikh was the Key Speaker of an inspirational seminar organized by Ahmednagar Centre. The topic was "How to Plan 2023".

20. Kolhapur Centre organized a programme on Knowing Archeology with three expert speakers – Dr PD Sabale and Mr Sachin Patil from Deccan College, Pune along with Mr Manger Singh of Lucknow.

21. Akola Centre organized an event called RAMPCON – Recent Advancement in Materials and Practices in Construction Technology in the last week of December. Ar Jitendra Mehta from Indore attended the grand exhibition. Er Narendra Kaware from Nagpur was the speaker in the technical session on Samruddhi Mahamarg.

22. Navi Mumbai centre organized a design competition for students – Motorsport Racing Track with prize money of Rs 51,000/-, Rs 31,000/- and Rs 18,000/- for the 1st, 2nd and Consolation Prizes.

23. Nandurbar Sub-Centre organized its Board Meeting in December.

24. Nashik Centre, along with CREDAI and ACCE(I) came together to start a 4 part series on High Rise Buildings. The 1st part was held on 22nd December. Ar Vivek Bhole, Mumbai, Mr Jaydeep Wagh – Geo tech Consultant and Er Umesh Joshi of J+W Consultants Pune were the expert speakers.

25. An awareness session was organized about Fire-fighting Norms for High Rise Buildings on 31st December which was supported by Nashik centre.

26. Regular EC meetings have been hosted by various centres across Maharashtra with good responses from various Centres across the State.

27. Felicitation and appreciation of Maharashtra Chapter members during Natcon held at Raipur with Certificate of Merit:

  a. Ar Makarand Toraskar, Thane
  b. Ar Jyoti Panse, Pune
  c. Ar Vinit Mirkar, Mumbai
  d. Ar Shilpa Sharma, Mumbai
  e. Ar Kapil Kawale, Nagpur
  f. Ar Vandana Pusalkar, Kolhapur
  g. Ar Shailesh Dandane, Pune
  h. Ar Govind Rajan, Navi Mumbai
  i. Ar Piyush Dugad, Nashik
  j. Ar Sandeep Patil, Kalyan Dombivali for Outstanding IIA Member
  k. Ar Sandeep Bawdekar, Maharashtra Chapter Chairman – Presidential Recognition Award
  l. Ar Prakash Deshmukh – Baburao Mhatre Gold Medal



Ar Jitendra Mehta at Akola event

Compiled by Ar. Mrinalini Sane



Awarded members of IIA Maharashtra Chapter

## IIA-Kerala Chapter

**En-stories – Kerala Chapter Convention 2022**

En-stories – Kerala Chapter Convention 2022 was held on the 27th and 28th of January 2023 at Orion County, Vagamon in Idukki district with pomp and glory attended by 350 plus Architects and their families.



The inaugural ceremony of KCC en stories January 2023.

The previous day of the convention was marked by the first-ever TSD rally Tropical trail was organised for architects in memory of Ar Jayakrishnan convened by IIA Kollam centre on behalf of IIA Kerala chapter which was flagged off from 1947 Indian restaurant, Kochi on 26th January. Cars were flagged off by Mrs. Nisha, Late Ar Jayakrishnan's wife and IIA Kerala chapter chairman, L Gopakumar. 33 teams from all over Kerala participated in the event and culminated at the IIA Kerala chapter convention venue at Vagamon on the same day. Rally was conducted by experts from KMA (Keraleeyam Motor Association) and winners were chosen by them. The valedictory function was held at the Kerala chapter convention venue at Vagamon. Ar George Jose, IIA Kollam centre vice chairman welcomed the gathering and Ar Gopakumar gave the chairman's address. , Ar Prasanth Mohan, rally convener, explained the story and process of the rally, Ar Pramod Kumar M R, spoke about the role of ABS and Ar Binumol Tom Jt Hon secretary, iia Kerala chapter, Ar Shintu George Chairman Kottayam centre made felicitations. This was followed by the musical night by musician Aravind Venugopal and team.

En Stories the theme for Kerala Chapter Convention was designed to be sharing the professional experiences and challenges faced by Architects through the narration of stories. The same was inaugurated by Ravi Deecee, Managing Director of Current books, the largest retail chain of book stories in South India. The inauguration was done by watering a plant by Ravi Deecee, the chief guest, Ar. L Gopakumar, Kerala Chapter Chairman, Ar. Shintu G George, Chairman, IIA Kottayam, Ar. Shobak Thomas, Convener, EN Stories, Ar. George Aikkarakunnel, Vice Chairman, IIA Kottayam, Ar. Archana R Rajan, Co convener, En Stories.

A short book containing the experiences, views and opinions of Architects named En Micro stories was released during the function.

After the inaugural ceremony, there were panel discussions headed by the categories Sanyasa by Ar. Ashley De Vos, ADV Consultants, Sri Lanka, Ar. Eugene Pandala, CSBNE, Lalichan Zacharias, Laichan Zacharias Atelier and Ar. S Gopakuamar, Kumar Group. The group named Vanaprastha was lead by Ar. Harsh Vardhan, Studio Lotus, Ar, Sebastian Jose, Silpi Architects, Ar. Latha Raman, Inspiration



Release of the en- microstories, book published during the occasion

Collective and Ar. Jayakrishnan, JCJR Architecture. The session Grihastha was by Ar. Dimple Mittal, mayaPRAXIS, Ar. Saiju Mohammed, Insight Architects and Ar. Niranjan Das Sharma, RGB Architecture Studio moderated by Ar. Chithra K, NIT Calicut. The session named Brahmacharya was lead by Ar. Anand Sonecha, SEAlab, Ar. Mohammed Afnan, Humming Treeand Ar. Arun Vidyasagar, Foliage moderated by Ar. Pratheek, ASADI.

In the scheme of things at 'en stories', Bubble Talks followed the panel discussion. Once the Architects in the panel discussion, gave their preface to the audience at large, each of the panellists and the moderator would head a session of Bubble Talks. The Bubble Talks essentially allowed for the audience to be reorganised into smaller groups. Each Bubble Talk was headed by one of the panellist who then took on the role of a speaker. An Architect of compatible experience participated as a moderator. At én stories', the bubble talks soon became a session that the participating Architects were looking forward to. It enabled the Architects to rethink, validate or even revise their style of practice. It became a fulcrum for the Architectural community to try and find common points and directions for the profession and a start to a more comprehensive dialogue within the Architecture community. The focus here was more on the practitioners within the state.

The GBM was conducted at 4 pm on 28th January 2023 where good discussions happened. After the GBM best performers from each centre were felicitated and many members who had put in their great efforts for IIA were specially recognised. The day ended with musical sessions by RIT music band, Kalaripayattu the martial art form of Kerala and DJ by Oorali.

Kutty Stories' a Creche facility for the kids of Architects was the first of its kind at any convention in Kerala. The same has become a benchmark for the conduct of future events of Architects in Kerala.



The team of Architects and family of IIA Kottayam centre (Host centre) along with Ar. L Gopakumar, Chairman IIA Kerala Chapter, Jt Hon Secretary Ar. Binumol Tom, Kottayam centre Chairman Ar. Shintu George, Convenor of en stories Ar. Shobak Thomas and Co-convenor Ar. Archana R Rajan at the valedictory session of Kerala Chapter convention.

viega

Viega
Touching
*Lives.*

Touching
*People.*

**JKCement**

## AWARD CATEGORIES

### GREAT MASTER'S / CHAIRMAN'S AWARD
(Once in 3 years)

### GREEN ARCHITECTURE AWARD
**(ENVIRONMENT CONSCIOUS DESIGN)**

(**Eligible Countries** : India, Bangladesh, Bhutan, Kenya, Maldives, Mauritius, Nepal, Seychelles, Sri Lanka, Tanzania & Uganda)

### INDIAN ARCHITECTURE AWARDS(IIA)
(**Eligible** : Any Indian Architect)

### ARCHITECTURE STUDENTS OF THE YEAR AWARD
(**Eligible** : Final year undergraduate students of Indian Colleges)

### FOREIGN COUNTRIES' ARCHITECTURE AWARDS (FCAA)
(**Eligible Countries** : Bangladesh, Bhutan, Kenya, Maldives, Mauritius, Nepal, Seychelles, Sri Lanka, Tanzania & Uganda)

### INDIAN STATE ARCHITECTURE AWARDS (ISAA)
(**Eligible States/UT** : States by Rotation)

33rd
**A**rchitect of
the**Y**ear
**A**wards
**JK AYA**

**33rd JK AYA is**
**OPEN FOR PARTICIPATION**

APPLY ONLINE
**www.aya-jkcement.com**
**Last date 30th JUNE 2023**

**For further information about JK AYA please contact :**

**RANA PRATAP SINGH**
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THE TROPHY

**OUR PRODUCTS :**

JK SUPER CEMENT BUILD SAFE | JK SUPER STRONG BUILD SAFE | JK SUPER STRONG BUILD SAFE Weather Shield | JKcement WhiteMaxX White Portland Cement | JKcement WallMaxX White Cement Based Putty | JKcement ShieldMaxX Universal Waterproof Putty | JKcement TileMaxX Premium Adhesives and Grouts | JKcement GypsoMaxX Premium Gypsum Plaster | JKC WOOD AMORE Italian Wood Finishes

Awards instituted by **JK Cement Ltd.**, Kanpur, India, Since 1990