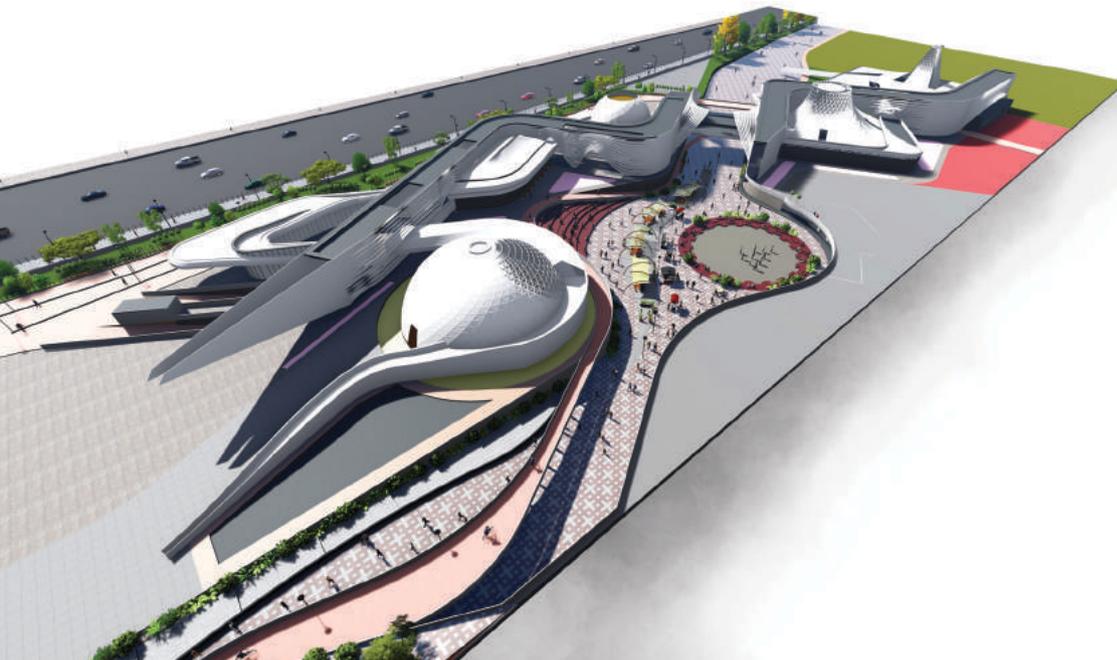


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ARCASIA PROGRAMMES



ARCASIA WINTER PROGRAM 2019 IN COLLABORATION WITH SAVEETHA COLLEGE OF ARCHITECTURE AND DESIGN (SCAD) AND THE INDIAN INSTITUTE OF ARCHITECTS (IIA), TAMILNADU CHAPTER



Theme : Environment and Architecture

Date : 2nd December - 8th December, 2019

Venue : Saveetha College of Architecture and Design (SCAD) Chennai, Tamil Nadu.

For more details, Contact : Prof. Ar. Durganand Balsavar & Prof. Dr. N. Jothilakshmy

Email : dean.scad@saveetha.com/principal.scad@saveetha.com
summerwinterschool.scad@saveetha.com

Tel. : 044-6672 6656



ARCASIA WINTER PROGRAM 2019 ORGANISED BY AAYOJAN SCHOOL OF ARCHITECTURE AND DESIGN IN ASSOCIATION WITH THE INDIAN INSTITUTE OF ARCHITECTS (IIA), MAHARASHTRA CHAPTER



Theme : Interpreting Built Heritage - A Workshop Tour

Date : 2nd December - 10th December, 2019

Venue : Aayojan School of Architecture and Design, Pune, Maharashtra.

For more details, Contact : Prof. Anand Ukidve / Prof. Sneha Bendre

Email : arcasia 2019.pune@aayojan.edu.in

Tel. : +91 90110 89105 / +91 90495 07025



ARCASIA SPORTS FIESTA 2020, COLOMBO, SRILANKA



On behalf of **ARCASIA** (Architects Regional Council Asia), the Sports Committee of **The Sri Lanka Institute of Architects** (SLIA) is organizing the **Inaugural ARCASIA Sports Fiesta** in **Sri Lanka** from **13th to 18th February, 2020**.

For more details, contact :
sportsfiesta.slia@gmail.com

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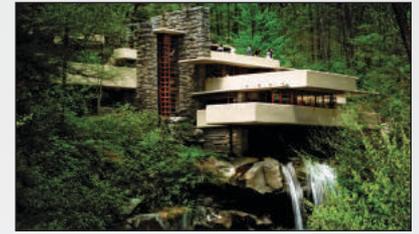
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Ar. Anand Palaye

EDITORIAL

Dear Fellow Architects & Readers,

Warm Greetings,

During the month of October 2018 edition of **IIA Awards** was very successfully organized by the **IIA Centre at Trivandrum**. A book containing the shortlisted entries was released during the Award ceremony.

This issue of the Journal has a very thought provoking article authored by a well known academic & recipient of **Madhav Achwal Gold Medal, Ar. Prof. Dr. S.S. Bhatti**. A project done by **Saurashtra Centre of IIA** an outstanding example of Architect Social Responsibility also finds prominence in this issue.

Other articles include “Saving the Water Hole” – a study of depleting water resources & solution for revival by **Prof. Sunanda Satwah**, Understanding Street Vending by **Pavanika Patil & Meenu S.**, Tactical Urbanism by **Prof. Sagar Gupta**, U-Values & Energy Efficiency by **Manisha Gotmare** & a Thesis Project “Anantya-Diamond Interpretation Centre by **Ar. Yohan S. Wadia**”.

A handwritten signature in black ink, appearing to read 'Anand Palaye', with a horizontal line underneath it.

Ar. Anand Palaye

Chairman - Publication Board & Executive Editor, JIIA



Ar. Divya Kush

PRESIDENT'S MESSAGE

Dear Fellow Architects,

Warm Greetings,

The month of October has been full of events for IIA. We once again organized the 2018 edition of the **IIA Awards for Excellence in Architecture** with great success concluding with a grand **Award Ceremony at Trivandrum on 4th October 2019**. Architects from across the country submitted their entries in different categories 81 out of a total of 518 were shortlisted for the final jury. The short listed entries have been published in the form of a book for the benefit of the Architects & the student of the Architecture. The **team Trivandrum Centre of IIA** under the experienced guidance of **Ar. N. Mahesh** deserve to be richly complemented for their meticulous planning & execution in organizing the event. Contribution of **Ar. Lalichan, Ar. Vilas, Ar. Paresh, Ar. Jaykrishnan, Ar. Saiju M. Basher**, the eminent panel of jury & many more members of the organizing team duly supported by the student volunteers has been exceptionally noteworthy & laudable.

In the festive month of October, **World Architecture Day** was enthusiastically celebrated by Chapters & Centre of IIA across the country by organizing talks & seminars & other similar events throughout the month. The highlight of all the celebrations was conscious effort in avoiding the use of single use plastic during the events.

Coming months are also going to be full of events & I am sure we will continue to make sincere & concerted efforts towards completely avoiding use of single use plastic & also take green & sustainable initiatives at our end & contribute towards making the environment clean & more livable.

This issue of the Journal has among others an interesting & thought provoking paper by **Ar. Prof. Dr. S.S. Bhatti**, a project as an example of Architects social responsibility by **Saurashtra Centre of IIA**. Next issue of the Journal will be a special issue on **IIA Awards 2018 for Excellence in Architecture**.

A handwritten signature in black ink that reads "Divyakush". The signature is fluid and cursive, with the first letter 'D' being particularly large and stylized.

Ar. Divya Kush
President,

The Indian Institute of Architects

Architecture Gone Hay Wire



Ar. Prof. Dr. S. S. Bhatti - Email : ashokathegreat1938@gmail.com

Ar. Prof. Dr. S. S. Bhatti, founder-teacher and former Principal Chandigarh College of Architecture Principal, is India's most versatile professional. He holds three PhDs. His M. Arch. Research Thesis on Rock Garden earned him M. Arch. from The University of Queensland, Australia. He pioneered holistic approach in multi-disciplinary scholastic investigation. Author of 700 articles, 200 research papers and keynote addresses, 30 books, he has won over 20 national and international awards.

Preface

Wide-spread uglification of the Natural Environment is being done worldwide in the name of "Modern" Architecture, or, as the historians have misnamed it, "Post-Modernism", without even a semblance of the grasp of Principles which were discovered by the pioneers of the Modern Movement. The term "Post-Modernism" is a misleading coinage of the historians—who twaddle without making any sense but yet succeed in selling their crazy ideas. The rapid advancement of Technology has outpaced the cerebral evolution of "form-givers" with the result that there is a "perfection of means but a confusion of goals". What the Architects do succeed in selling to their nouveau riche clients [with tons of black money] is anything but Architecture.

Architecture and Mother Nature

At the mundane level, Architecture is, in my considered opinion, a psycho-emotional expression of many disciplines, concerns, themes and issues, as embodied in building materials put together by the available methods propelled by a creative imagination. This may be called "ephemeral" Architecture. The "eternal" genre springs from a poetic vision of which the fountainhead is the Architect's Creativity: a never-ending adventure into the realm of the human spirit. An artist so inspired regards Nature as "Mother" so palpably alive that he wouldn't rape her even in the wildest of his dreams!

The Birth of Modernism

What we call "Modernism" was born with the advent of Renaissance when the focus somehow shifted from the gods to human beings, with all their mundane problems as well as cultural aspirations. This was a radical movement from the "religious" to the "secular" aspects of human life at all levels as lived during workaday existence. These problems and aspirations couldn't be solved by the preceding Gothic style even at the pinnacle of its glory! The thinking minds thus revived their interest in the classical periods, looking for solutions to the emerging problems—and ended up creating a form of Building Design called the "Renaissance" style. The multi-centred, pointed arch gave way to the semicircular arch, and whatever went with it as a "creative" package. When it became a regimen too suffocating to let fresh air in the realm of architectural creativity, the daredevil Architects broke away

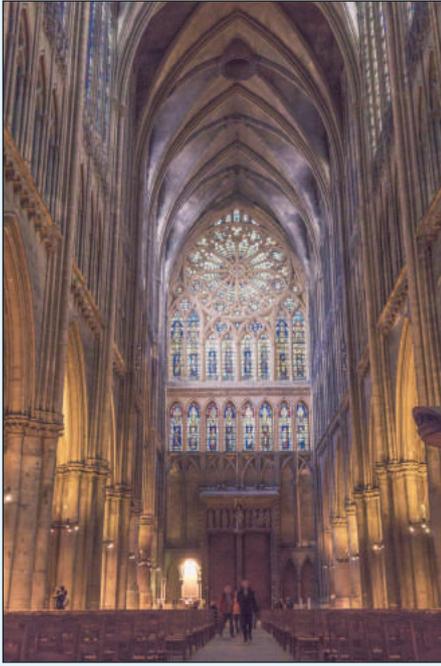


Gothic Cathedral

to form their own rules to create an Architecture critics jeeringly named "Baroque" [literally, a badly shaped pearl!] Thus were twisted columns, and sculptured skylines born—their ruthlessly bold expression carried the unmistakable daredevilry of the Architects who produced them. Rococo style followed with a shift to the interiors with an obsessive attention to finer details.

Industrial Revolution

It was not long before the Industrial Revolution upset everything once again by ushering in all kinds of problems too new to be solved by any of the existing styles or systems. The use of machine became indispensable and, therefore, new methods had to be developed beyond the sentimentality of William Morris's Arts and Crafts Movement. The pioneers of Architecture, properly so called "modern", did a great job to show a way away from blind copying of the historical styles or their eclectic ensemble. Louis Sullivan in America, and Peter Behrens, Henri van de Velde, Auguste Perret, et al, in Europe laid the ground for Masters of Architecture to create the new



French Gothic Architecture - Cathedral Interior



Twisted Columns



Sagrada Familia - Barcelona

idiom for the New Age : Gaudi, Wright, Gropius, Mies, Corbusier, and Kahn are the “Masters”. They are followed by “Makers”, “Continuators”, “Distorters”, and “Traders”.

Antonio Gaudi

Gaudi extended the Gothic tradition of vaulting into sophisticated scientific experiments, and relieved the Form, or container of Space, into exquisite biomorphic shapes such as can be seen in his masterpiece, the church of Sagrada Familia.

Frank Lloyd Wright

Wright ushered in a whole range of concepts of Space, and exalted the position of the cantilever principle as a mode of expressing an inalienable native freedom buried alive in each human bosom.

Walter Gropius

Gropius, though also a Master Architect, produced something other than mere buildings: a universal system of Architectural Practice as a collaborative, multi-discipline venture of many professionals, by melding the Theoretical [confined to classroom lectures and studio exercises], Practical [the making of prototypes in the workshops], and Industrial [actual products manufactured in factories] aspects of Architecture into the selfsame creative activity.

Mies van der Rohe

Mies's techno-savvy approach to Architectural Design created masterpieces like the Seagram building, which is the hallmark of precision in what I call aesthetic detailing. He prepared one hundred models of its façade, varying the span between mullions by one-sixteenth of an inch, to select the most beautiful alternative in terms of perfect proportions among them! In this building Space, Structure, and Form are in their

closest proximity to each other in what he called “Skin-and-Bone” Architecture.

Le Corbusier

Corbusier's predilection for sculpture and painting led him to the mastery of Form, creating such an architectural expression as has no historical precedents at all.

Louis Kahn

Kahn, I call him the Mystic of Modern Architecture, scored over other Master Architects, in his unrelenting persistence to express the indispensability of services in making Modernism possible, and poetically used them as aesthetic adjuncts to an array of essentially utilitarian building masses. His Richard Medical Labs is an unmatched masterpiece of this genre of Modern Architecture.

Perverted Forms of Architecture

It may be conceded that the Master Architects created a truly Modern Architecture from which we have drifted far too away into a sickening gimmickery of Building Design that has produced more monsters than monuments. Thus there are a whole range of pseudo-styles I call : **Arti**-tecture, **Histori**-tecture, **Techni**-tecture, **Money**-tecture, **Mistri**-tecture, **Fantasi**-tecture, and so forth. When Art is over-stressed, it is Arti-tecture; Technology-obsessed Building Design produces Techni-tecture; a vulgar exhibition of black money in buildings as misplaced expression of social status produces Money-tecture; structures prostituted by the whims of the money-rich, poor-minded, overlords turn Architects into traders of the “flash” [a brick-and-mortar equivalent of biological “flesh”], and the artefact miscarried thus is Mistri-tecture. When Building Design has nothing to do with either inner or outer reality, you get Fantasi-tecture!



Louis-Sullivan - National Farmers Security Bank

Principles of Modern Architecture

We must pay heed to the Principles of Modern Architecture to restore sanity in the world. The Principles are: simplicity; lightness; poise; optimal use of materials and energy, honesty of expression; scientific method for structure; deference for services; reverence for Mother Nature, etc.

Spiritual Creativity

A holistic sculpting of Space, Structure, and Form, in the context of Time—brought about in a trance of spiritual creativity—alone can bring forth a Building Design that can be truly called Architecture. One example should illustrate this view. All structures in the world built by intuition, before mid-19th century were over-sized; therefore, compared to the egg-shell, were rather crude and less efficient in terms of optimal use of resources. I define “optimum” as minimum put to a maximum use! But all structures built thereafter by the scientific method are many times more efficient than the egg-shell. They thus assume a charming lightness and poise. Apart from this parameter, there is an urgent need to enact a law that a building must follow the Principle of doing progressively more and more with less and less. The use of materials by weight per cubic foot of the total built-up volume should be prescribed under Building Byelaws and carefully assessed before building designs are sanctioned for construction on site.



Saint Peter's Basilica

Architectural Fads

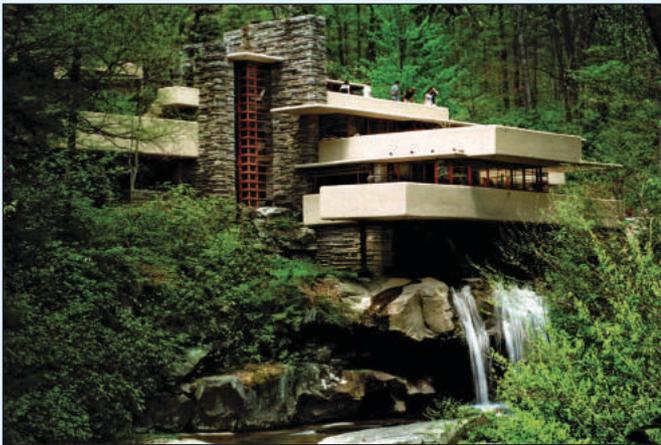
In the harrowing flood of a churning melange of unsettling fads, namely, green building; intelligent building; smart building; sustainable development; environmentally-friendly construction, and what have you, Architecture is rapidly being washed away for ever. These are mere names which have nothing to do with Architecture per se and, at best, are architectural jingles to sell unsavoury building designs to gullible clients whose enormity of money-power is matched only by their total mindlessness! For instance, if orientation is a major design criterion for energy-efficient buildings, as is being professed nowadays, you can never get it perfectly *right* if the master plan of the city has not been developed with this criterion precisely in mind, in the first place.

Depleting Forest-Cover

With more and more urbanisation the world's forest-cover is fast depleting. If Urbanisation is unavoidable, we should formulate a national policy to regulate it on the lines of a vision which encompasses various inputs from technology and



Dhaka National Assembly



Falling water-Frank-Lloyd-Wright-Mill-Run-Pennsylvania-1937



American Embassy - Athens

applied researches in different fields. My own view is that urbanisation is a safe investment as it sells well besides creating thousands of new jobs. Urbanising the entire country means that we will require 1600 more cities of the size of Chandigarh. If we start building 40 cities in 25 years the entire nation would be busy doing the task for a full millennium!

Van-Urbanisation

If that be the case, I suggest, we resort to what I call “Van-Urbanisation” in which “Van” is the vernacular term for “Forest”. To prevent further depletion of forest-cover, not only should mass-scale afforestation be an integral part of national urbanisation plans but actually precede them. Forests should be planted at various places throughout the country to have a salutary effect on the Built-Environment: national, regional, state, district, city, and neighbourhood levels. The entire land-mass of the country should be superimposed with a grid having a basic unit of 50 kilometres by 50 kilometres to mark out suitable areas for such afforestation.

Forest Culture

To achieve our aims holistically, we must remember that India's is essentially a *Forest Culture*, steeped in Rusticity [not Sophistication]--our national, divinely-ordained, endowment, by virtue of which our ancient philosophy is still unmatched in the world. In other words, it is both timeless and universal! What we call *adivasis* would thus be rehabilitated in, rather than ousted from, their natural habitat. They will themselves look after the new forests with their time-tested ancient wisdom concerning plants and shrubs.

Little-Known Virtue of Vāstu

I am not particularly impressed by “*Vastu*” but I definitely find a lot of sensible content in what the ancients prescribed for the education of a “*Vaastukaar*” {architect}: 16 different disciplines including Music, Mathematics, and Astronomy. What a holistic Architectural Education it was, the like of which has not even been thought of in the modern world!



High Court

What Indian Architects Can Do

In the light of the foregoing exposition, India and the Indian Architects can truly give the entire world a lead in the making of a Built-Environment that is socio-economically beneficent, aesthetically satisfying, and spiritually uplifting. Only our Architects and Academicians have to stop aping the foreign ideas, refrain from producing pseudo-“Indianness” in Modern Architecture by a senseless use of historical elements and stylistic motifs, abandon the race for material success, and revive the path of what I call “meducation” [i.e. meditation plus education] for deep fulfilment that *dharma*-grounded Creativity brings as the inner glow!

Geography-Architecture-Planning

This is where the world's thrust on blind urbanisation has come amiss. The knowledge of the land on which we build is limited to the suitability of location or only commercial concerns. This could be corrected by adopting a fresh approach to education, especially of Architecture. I call this system G-A-P in which 'G' stands for Geography; 'A' for Architecture; and 'P' for Planning. In my reckoning, Geography is the Mother Science; Architecture is the Mother Art; and Planning is the Mother Strategy. The three must be taught and practised in total unison to prevent further uglification of the Mother Earth, and the malicious proliferation of

“architectural” monsters! At present, these disciplines are taught as mutually exclusive academic aberrations.

New Model For Architectural Education

Such an Architectural Education must be simultaneously imparted with these four modes of producing knowledge: Theory, Practice, Research, and Pedagogy. Theory is Thought; Practice is Action; Research is Investigation; and Pedagogy is Communication. The entire scheme should develop skills in the four major fields of human endeavour: Humanities, Art, Science, and Technology. All this must be grounded in the study and practice of *dharma*, which is the Cosmic Moral Law, and has nothing to do with what we are sorely aware of as the sectarian malaise of various religious denominations. The sense of “in-touchness” with *dharma* is crucial in the light of our great tradition moulded on the quartet: *dharma*, *artha*, *kama*, and *moksha*.

The Upshot

Le Corbusier touched the high point of Creativity when he declared that Architecture is not a profession; it's a Habit of the Mind! I will go a step further to stress that unless the Architect is *spiritually* awake, Architecture of the kind I am professing is well-nigh impossible!



Farnsworth House

RAJKOT EYE - WAY

CENTRALISED CCTV CONTROL AND POLICE COMMAND CENTER
- COMMISSIONER OF POLICE, RAJKOT CITY

Rajkot Eye - Way

Command & Control Center
Commissioner of Police - Rajkot City

Building Designed, Executed & Funded by



THE INDIAN INSTITUTE OF ARCHITECTS
Saurashtra Centre



PROJECT DETAILS

Site context	Situated at heart of the city at South West Corner of Commissioner of Police campus facing cross roads of Race course. Campus having old styled buildings also.
Built up area	4,000 sq. ft. Build up
Site area	10,000 sq. ft.
Police Command & control Centre	
Location	The project is situated in the south west corner of the CP office, Race course. Rajkot

Flagship project of the indian institute of architects - Saurashtra centre, conceptualised, designed and executed by iia-saurashtra center with the support from vendors across gujarat.

Under Govt. of Gujarat's project -safe & secure - Gujarat, Rajkot city is going to install CCTV cameras for the safety, security, traffic & smart city solutions. 920 CCTV cameras, 65 km Optical fibre cables to capture data & analysing and watching Command & control center in the office of the commissioner of Police –Rajkot city.

This is the centralised CCTV control and command center positioned next to 108 and other emergency departments at police headquarters.

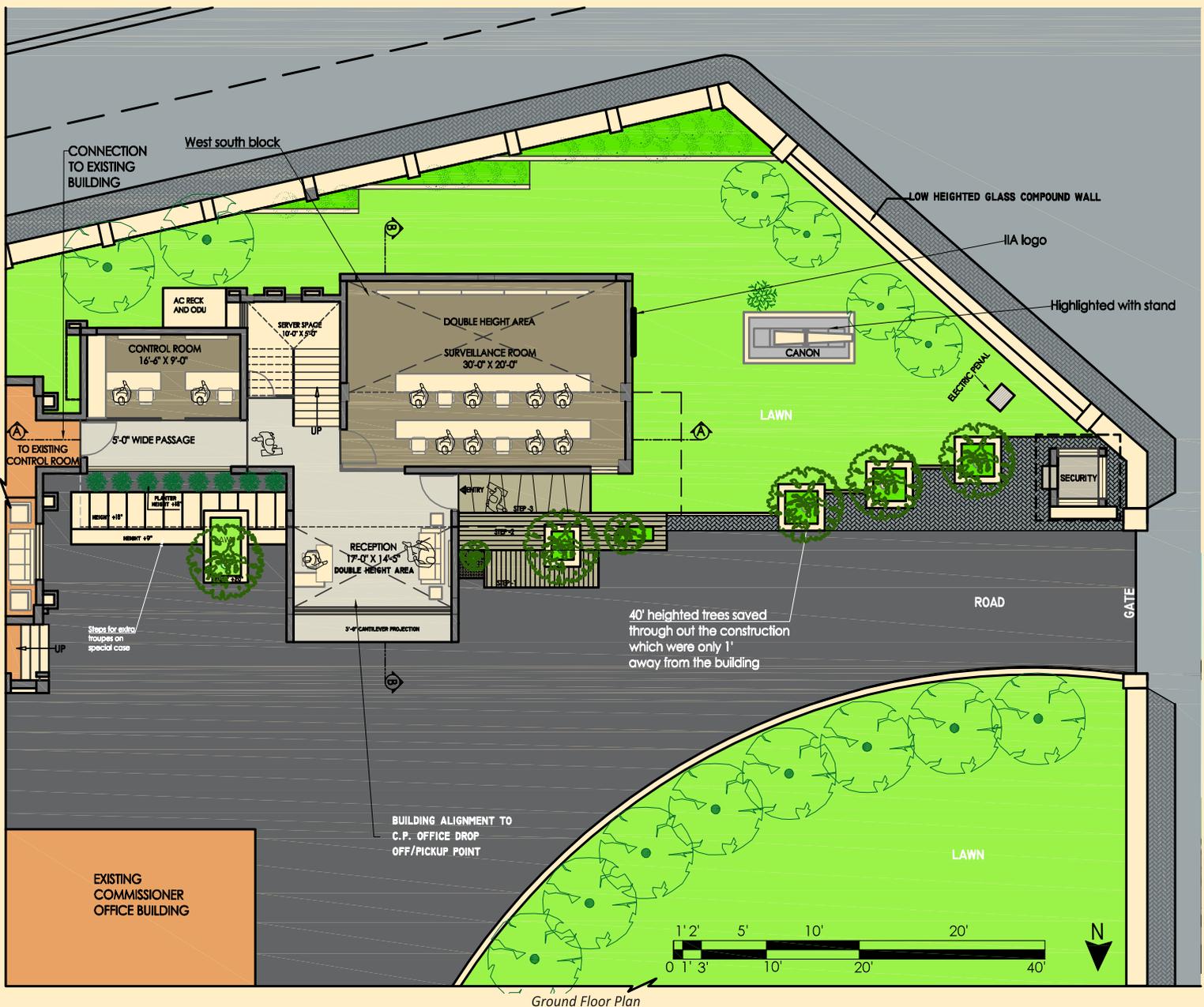
CONCEPT AND METHODOLOGY:

IIA taken this project to show Architecture importance in modern buildings and to create design marvel as a professional social responsibility.

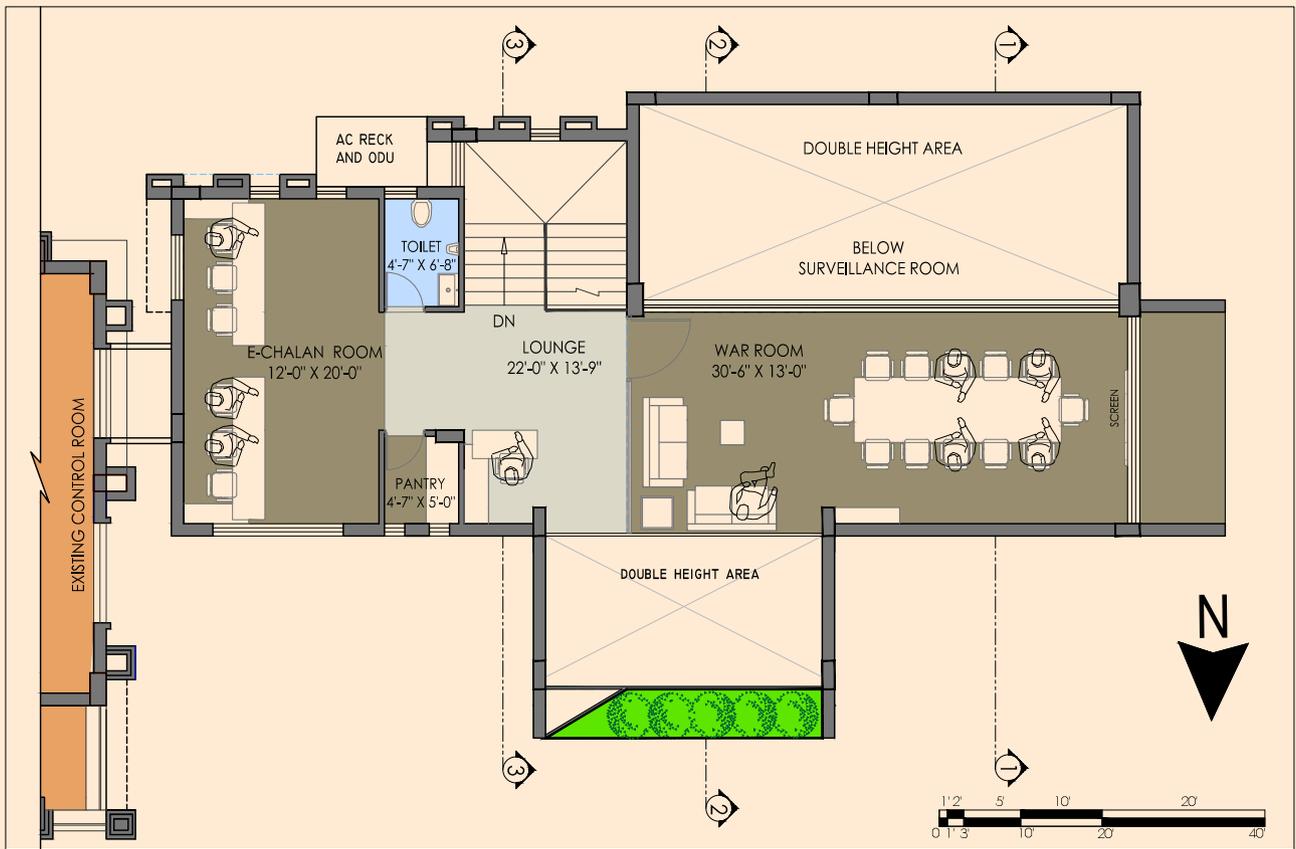
Here simple geometrical shapes of cubes and cuboids are taken as concept. The Surveillance Centre is designed through the intersections of geometrical shapes with each other to give it modern look. The main functions in this project are.

- Conference room
- Surveillance room
- Center in charge
- Server room / Store / pantry / Toilet / Waiting etc.

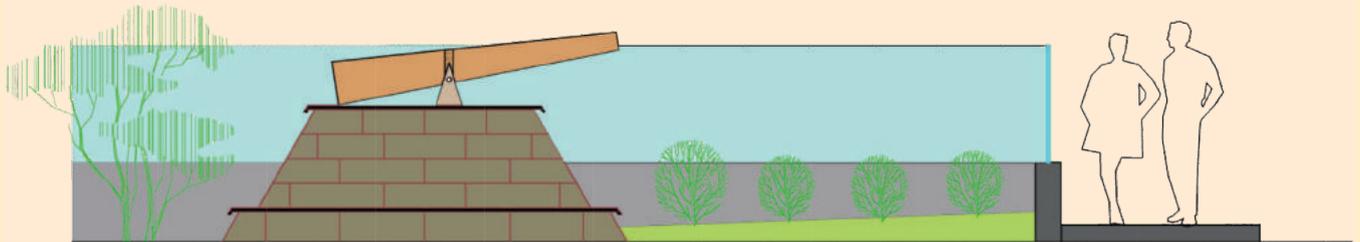
One form is intersected with the other form to enhance the volumetric function of the building from inside as well as from outside. It is a two storey structure where spaces are designed in a way that confidentiality of the operations or matters are maintained. Until now tap management & CCTV data operators (often outsourced) had to be in same area, where



Ground Floor Plan



First Floor Plan



glass compound wall to highlight building landscape and canon



double heighted area on both the side manager and surveillance room and war room in the middle



screen angle on double heighted area are same from controller room on top and operator room on bottom



3D SECTION 33

confidentiality was not maintained. Conference room was designed on the upper level while the operators are working from lower level. Viewing angle for both is almost equal, as CCTV monitors are kept at double heighted command room. This idea has proven very innovative in solving the problems of confidentiality in the police department.

Very Basic, pure geometric shapes with clear lines used to make small structure.

Upper level Building mass shifted outside to make over hang and made covered entrance.

CCTV room, which has to be dark room, is kept at south west side with heavy wall. Shadow of building will be falling on entrance side & steps.

Connection to dial 100 & existing control room made from east side.

South/ west facings are blocked / North side have maximum glass

Steps have been created around the existing trees on the northern side of the building, thus providing the much required informal meeting spaces that can be used in special occasions. One form is intersected with the other form to enhance the volumetric function of the building from inside.

All the north facings are kept open to have the maximum income of natural light. The window in the Conference is facing the city to have a look at city whenever one wants. Glass on double heighted area split in to 2 Blur & transparent for privacy.

PROJECT DETAILS

This is a Flagship project of The Indian Institute of Architects - Saurashtra Centre.

Under Govt. of Gujarat's project -safe & secure - Gujarat, Rajkot city is going to install CCTV cameras for the safety, security, traffic & smart city solutions. 920 CCTV cameras, 65 km

Optical fibre cables to capture data & analysing and watching Command & control centre in the office of the commissioner of Police –Rajkot city.

Conceptually, the command centre is a source of leadership and guidance to ensure that service and order is maintained, rather than an information centre or help desk. Its tasks are achieved by monitoring the environment and reacting to events, from the relatively harmless to a major crisis, using predefined procedures.

Conceptual development

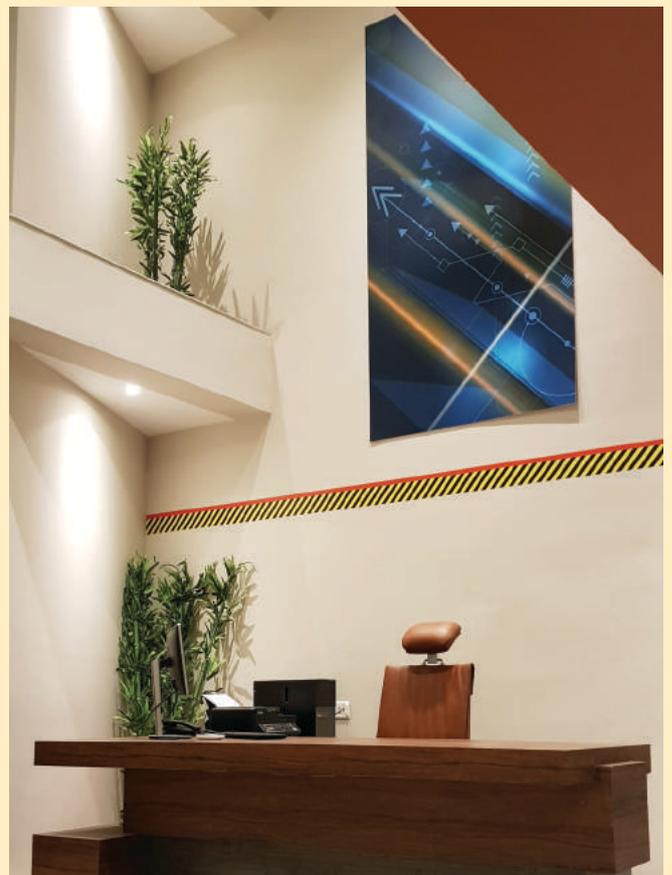
Very Basic, pure geometric shapes & intersections with clear lines used to make this bold structure.

Upper level Building mass shifted outside to make over hang and made covered entrance

Here simple geometrical shapes of cubes and cuboids are taken as concept. The Surveillance Centre is designed through the intersections of geometrical shapes with each other to give it modern look.

The Indian Institute of Architect's logo & name on the cross roads of Rajkot's heart at Race course on a prominent public building makes IIA proud.

Glass Compound wall also represented transparency & courage of police department, also for highlight the building, sinages, Landscape from cross roads. (Near Glass Compound wall)



Double heighted reception area



North elevation

The main functions in this project are Conference room, Surveillance room, Centre In charge, Server room / Store / pantry / Toilet / Waiting etc.

One form is intersected with the other form to enhance the volumetric function of the building from inside as well as from outside.

Very Basic, pure geometric shapes with clear lines used to make small structure.

Upper level Building mass shifted outside to make over hang and made covered entrance.



Majestic view of Logo of IIA and historic canon is visible to passersby from city centre

RAJKOT EYE-WAY: INTEGRATED COMMAND & CONTROL CENTRE



Shri Anupam Singh Gahlaut
Commissioner of Police, Rajkot City

Concept: Rajkot, the commercial and industrial capital of Gujarat, lies geographically in centre of Saurashtra and its location is such that anyone wanting to go to traverse the other districts of Saurashtra, has to pass through Rajkot. This has given rise to a steep increment in vehicular traffic, as well as a passing migrant population to the city. Another challenge being faced by the our Police force is the growing number of missing persons being reported.

All these alarming issues needed to be addressed and thus the concept of an Integrated Command & Control Centre was born. The Saurashtra Architect's Association decided to volunteer for this project of social engineering and thus teamed up with the Rajkot City police to brainstorm and help create a structure that not only assists the Police force fulfill their daily responsibilities, but also becomes a landmark to make the city proud.

Design: The team of Architects under the leadership of Mauktik Trivedi designed the Command & Control Centre as per the brief received from our think tank at the Police Commisionerate.

Beginning with very fundamentals, a container through which one also connects to elements of nature and society's social fabric was conceived. The form was then boiled down to Two essential components i.e. a pavilion and a box, a duality explored programmatically and experientially as a private/public, open/closed, transparent/opaque throughout. Exploiting the full potential of the site facing the City centre and fanned by main roads besides, working with the limiting by-laws imaginatively became an overriding concern too.

Functionality: The design intervention created here took cognizance of the key functions of a E-Challan Generation Centre, War Room, Witness Inter-action Centre and a functional pantry for the staff.

The built form exudes a character which is modern yet minimalistic with a flair for the contemporary. The location, design and placement of a Cannon, a relic from history dating back to the early British occupation, con vey an expanse of culture, heritage and a sense of security to the passer by, and also helps corroborate the uniqueness of the place. Besides the architectural fraternity, the Rajkot Building Contractor's Association and the Saurashtra-Kutch Chamber of Commerce & Industry, and a long list of dedicated vendors to Saurashtra's construction industry came forward selflessly, in support of our police force's dream project to empower them by shouldering the total cost of the project's construction costs and labour costs thereby, setting an excellent example of Public-Private partnership. The need of the hour proposal mooted by IIA – Saurashtra Chapter and the speedy execution of this unique project got its recognition when Prime Minister Narendra Modi while addressing the National Conference held at Lucknow on Smart City Mission and Urban Transportation, highlighted the contribution of Rajkot Eye-Way Project in substantial reduction of Crime rate in Rajkot, and also improving Rajkot Municipality's street cleaning and solid waste management systems by ushering in efficiency through the Integrated Command & Control Centre.



Ar Mauktik Trivedi
Chairman IIA – Saurashtra Chapter

On completion of 100years of Indian Institute of Architects, we at Saurashtra Chapter decided to create something unique for the citizens so that even the common public can remember IIA for the next 100 years. "happiness through architecture" being the slogan adapted by IIA in its centenary year, we decided to work on safety and security of the people by strengthening Rajkot's Social fabric to achieve happiness for the citizens. My earnest appeal to Rajkot Building Contractor's Association & Saurashtra-Kutch Chamber Of Commerce & Industry that "We should give back to society from where we all have earned" received a tremendous response. Eventually the Integrated Command and Control Centre project became a reality under the Chief Minister's "Safe and Secure Gujarat" initiative.

Ar BHAVESH MEHTA Hon.Secretary, IIA Saurashtra Centre

"It was indeed a proud feeling for me when we were installing first time ever IIA's emblem on a public building. The joy in me knew no bounds"





Ar Nilesh Vagadia – Treasurer, IIA Saurashtra Center
 I worked for this unique CCTV project considering it as a CSR (Consultant Social Responsibility) activity. The satisfaction this project has helped me attain is simply immeasurable.

Ar Pratik Mistry - Committee member IIA Saurashtra Centre

This project is one of the benchmark and great example in terms of its design for the given purpose and its financial model. This project was taken up as a professional social responsibility by IIA Saurashtra centre not only for providing designing services but also include various building construction industries to build this building and gift to police department of Rajkot city for the safety and security of city and its inhabitant.



Ar Chaitanya Sinhar – Committee member

Right from the onset our intent was very clear on deliverables that IIA Saurashtra Centre wanted to give back something meaningful to the Society in general. The Design, sense & feel of Material, corporate look has now become the real strength of this unique Public-Private Partnership Project.

Ratansibhai, Vajubhai, Pareshbhai – Civil Contractors

When it was informed that the Architect's community of entire Saurashtra region were offering completely free and voluntary services in terms of Designing, schematics and supervision for this project in partnership with Gujarat Government, Rajkot's Civil Contractor association immediately offered free labour services for the entire project starting right from the excavation for plinth till the last slabs and bricks were laid.

Ar Vinod Makhesana – Member IIA Saurashtra Centre

I feel really happy to see 'some meaningful process carried out in very enthusiasm and joyous spirit. what is touched me is the process of the entire event, and that is an of collaboration of various people, designer, agencies, client, and many more working as a "community building for community" for some meaningful cause. Bravo and wishing you and your community spirit to

CCTV room, which has to be dark room, is kept at south west side with heavy wall. Shadow of building will be falling on entrance side & steps.

Connection to dial 100 & existing control room made from east side.

South side blocked, deeply recessed west facings windows & Big opening on North side to have maximum glare free light.

3CCC building is designed through the intersections of simple geometrical shapes of cubes & cuboids with each other to give it modern look & functionality.

Window to wall ratio has been optimised to ensure that sufficient daylight increases into the building & not the heat.

Larger openings on the north and deeply shaded openings on the west have been designed for the same.

4 It is a two storey structure where spaces are designed in a way that confidentiality of the operations or matters are maintained. Until now top management & CCTV data operators (often outsourced) had to be in same area, where confidentiality was not maintained.

Conference room was designed on the upper level while the operators are working from lower level. Viewing angle for both is almost equal, as CCTV monitors are kept at double heightened command room. This idea has proven very innovative in solving the problems of confidentiality in the police department.

AAC – blocks with an optimised 'U'- value have been used for construction. These insulate the building & also use – recycled industrial waste.

To involve the local community, all materials vendors & also sponsors were local. This also boosts the local economy and brings a sense of belonging to the city at large.



north west elevation



IIA Saurashtra Center team headed by Ar Mauktik Trivedi, Chairman, Saurashtra Center along with IIA Prresident Ar Divya Kush seen here with Gujarat Chief Minister Shri Vijay Rupani, Commisioner of Police Shri Anupam Singh Gahlaut & Mayor Shri Jaimeen Upadhyay

IIA President Ar Divya Kush receiving Hon. Chief Minister of Gujarat Shri Vijay Rupani. Seen in the picture are Commisioner of Police, Rajkot City, Shri Anupam Singh Gahlaut .along with Chairman, IIA Saurashtra Center, Ar Mauktik Trivedi



Corridor of war room

Conference room





IIA President Ar Divya Kush along with IIA Saurashtra Center team headed by Ar Mauktik Trivedi handing Over Command Centre CCTV building to Hon Chief Minister Shri Vijay Rupani and the Mayor of Rajkot City Shri Jaimeen Upadhyay

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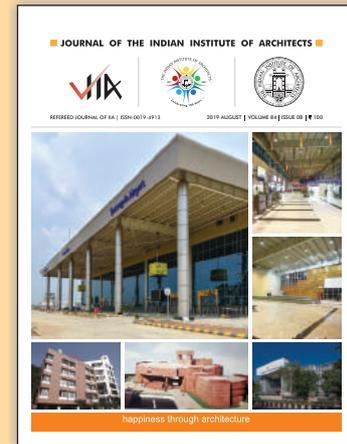
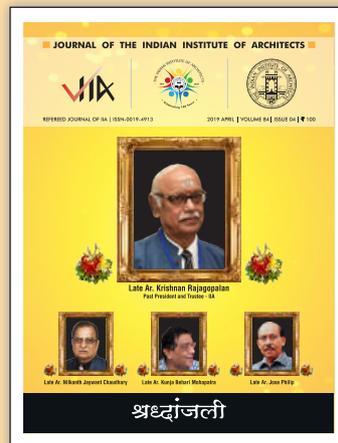
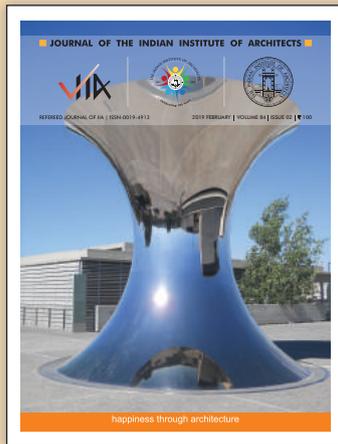
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The Review Of U-Values And Its Associated Effect In Energy Efficiency Of A Building

Subject Guide : Ar. Harshal Ganorkar, Ideas-Nagpur



Ar. Manisha Gotmare - Email : manisha.gotmare@gmail.com

Ar. Manisha Gotmare, completed Diploma In Interior Design And Decoration in 1993 from WTERI, Nagpur and 4 years Degree In House And Interior Design in 2002 from Somalwar Academy's Nikalas Mahila Mahavidyalaya. Bachelor Of Architecture passout in 2011 from PIADS Nagpur, YCMOU university Nashik. I did my master's in environmental architecture in 2019 from IDEAS Nagpur, R.T.M.N.U. Recently awarded as IGBC AP. Worked as TERI-GRIHA auditor. Experienced in residence design, retail design, institutional design and hospital design. Served as an HOD of Interior design department at INIFD, Nagpur.

ABSTRACT :

The steep increase in energy demand mainly during the summer season for composite climates has gained significant importance in this scarce condition of fossil fuels. This paper presents a review on U-values to reduce the cooling loads during summer thus helping in energy conservation. However, the effective U-Factor of the material assemblies for building elements (walls and roofs) are different considering the dynamic internal and external environmental conditions which change as per variation in climatic conditions – external temperature (DBT/WBT), solar radiation, wind speed, etc. Hence the effectiveness of the materials in resisting heat flow through envelope would be different for each climate zone as well as cities within similar climate zones.

KEY WORDS : U-value, R-value K-value, Thermal Transmittance, Thermal Resistance, Thermal conductivity, Energy Efficient Building.

Introduction

The main benefit from measures to improve energy efficiency buildings is lower energy costs but there are usually other benefits to be considered too. Energy efficiency measures are meant to reduce the amount of energy consumed while maintaining or improving the quality of services provided in the building. Among the benefits likely to arise from energy efficiency investments in buildings are: Reducing energy use for space heating and/or cooling and water heating; reduced electricity use for lighting, office machinery and domestic type appliances; Lower maintenance requirements; improved comfort.

The measure of heat loss through a material, referred to as the U-Value, is also used as a way of describing the energy performance of a building. The U-value refers to how well an element conducts heat from one side to the other by rating how much the heat the component allows to pass through it. They are the standard used in building codes for specifying the minimum energy efficiency values for windows, doors, walls and other exterior building components. U-values also rate the energy efficiency of the combined materials in a building component or section. A low U-value indicates good energy efficiency. Windows, doors, walls and skylights can gain or lose heat, thereby increasing the energy required for cooling or heating. For this reason most building codes have set minimum standards for the energy efficiency of these components.

What is U-value?

U-values measure how effective a material is an insulator .The U-value is an important parameter to determine in order to know the rate of heat loss through a building wall and quantify the energy performance of the building. Thermal transmittance, also known as U-value, is the rate of transfer of heat through a structure (which can be a single material or a composite), divided by the difference in temperature across that structure. The units of measurement are W/m^2K . The better-insulated a structure is, the lower the U-value will be. The technical name for which we use the shorthand 'U-Value' is Thermal Transmittance. The U-value of a building component like a wall, roof or window, measures the amount of energy (heat) lost through a square metre (m^2) of that material for every degree (K) difference in temperature between the inside and the outside.

Why use U-values?

U-values are important because they form the basis of any energy or carbon reduction standard. In practice, nearly every external building element has to comply with thermal standards that are expressed as a maximum U-value. Knowledge of how to simply calculate U-values at an early stage in the design process, avoids expensive re-working later on in a project. It allows the designer to test the feasibility of their project at an early stage to ensure it is fit for purpose and will comply with regulatory frameworks.

When to use U-values?

U-values are calculated at stages D onwards in the design process. A critical milestone in any building project is obtaining building regulation approval. As part of this process, the buildup of any external construction element must be specified and from this its U value can be derived.

How to calculate U- value? Let's sort out the units we use to define it.

Energy flows along in watts (which is a measure of energy in 'joules' flowing over a period of time in 'seconds'). **Temperature** is measured in degrees Kelvin – which practically is degrees Celsius to the rest of us. The actual equation involves a few more 'values' which when put together gives us the U-value of our wall or window.

$U = 1/R$ in W/m^2K or Watts per square meter per degree Kelvin

The 'R-value'

'R-value' (reciprocal of U-value) means the **Thermal Resistance** or how much of a fight the material puts up against the heat passing through it, for a given thickness and area. The R-value is expressed as m^2K/W . The heat flow through a building construction depends on the temperature difference across it, the conductivity of the materials used and the thickness of the materials. Of course the temperature difference is an external factor. The thickness and the conductivity are properties of the material. A greater thickness means less heat flow and so does a lower conductivity. Together these parameters form the thermal resistance of the construction. If the component is a composite (consisting of several material elements), the overall resistance is the total of the resistances of each element. A construction element with a high thermal resistance (e.g. rock wool), is a good insulator; one with a low thermal resistance (e.g. concrete) is a bad insulator. The **'R-Value'** too has its own equation that picks up on yet another 'value': $R = t / \lambda$ where 't' is the thickness of the material in meters and λ is the Thermal Conductivity (sometimes known as the 'k-value')

The 'Lambda (λ) value 'or K-value

The lambda (λ) value, or the **Thermal conductivity**, or 'k-value' of a material, is a value that indicates how well a material conducts heat. It indicates the quantity of heat (W), which is conducted through $1 m^2$ wall, in a thickness of 1 m, when the difference in temperature between the opposite surfaces of this wall equals 1 K (or $1^\circ C$). In practice λ is a numerical value expressed in terms of $W/(mK)$. **The lower the λ value, the better the insulation property of the material.**

Calculating U-values of multiple layers of materials

Any thorough analysis of the thickness of insulation required to meet a specified U-value will require some detailed calculations. The earlier discussion of the basics of U-values only considered the thermal resistance of a single slab of a building material. In any practical building element there will be extra thermal resistances, particularly those of the thin layers of air adhering to the outermost and innermost layers of the material, and the air in any substantial gap between the layers. Table 1 gives standard thermal values used for these. Note that the outside surface resistance is much lower than the value used for the inside surface. This is because the air is less likely to be still on the outside and will thus provide a relatively poorer insulation performance.

Table 1 : Thermal resistances for surfaces and air gaps

Layer	Resistance / $m^2 K W^{-1}$
Inside surface (Rsi)	0.13
Air gap	0.18
Outside surface (Rso)	0.04

The thermal resistances of the components of a building element can be added in series as in Figure 1, to give a total thermal resistance (rather like adding electrical resistances in series). The total thermal resistance of a practical building element will thus consist of the sum of those of all its layers plus the inside and outside surface resistances.

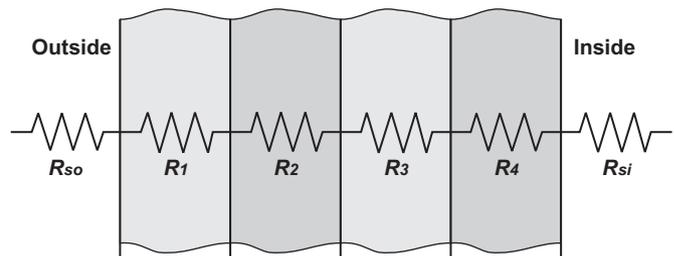


Figure 1 - Summing thermal resistances

Taking, for example, a wall construction with four layers, the total thermal resistance, RT , will be :

$RT = Rso + R1 + R2 + R3 + R4 + Rsi \text{ m}^2 \text{ K W}^{-1}$

The U-value of this wall is its inverse = $1/RT \text{ W m}^{-2} \text{ K}^{-1}$

For example the wall shown in Figure 1 consists of the following layers : 115 mm common brick, a 115 mm cavity filled with mineral wool (conductivity $0.035 \text{ W m}^{-1} \text{ K}^{-1}$), 115 mm of aerated concrete block work (density 460 kg m^{-3}) and a 13 mm layer of plaster on the inside. Using the conductivity values in Table 2 we can calculate its U-value by summing the various thermal resistances as shown in Table 2.

Table 2 : Calculation of thermal resistances

Layer	Thickness/m	Conductivity/W m ⁻¹ K ⁻¹	Resistance/m ² K W ⁻¹
Outside thermal resistance			0.04
Brick	115 mm	0.77	0.115/0.77 = 0.15
Mineral wool	115 mm	0.035	0.115/0.035 = 3.29
Aerated concrete block	115 mm	0.11	0.115/0.11 = 1.05
Dense plaster	13 mm	0.57	0.013/0.57 = 0.02
Inside thermal resistance			0.13
Total thermal resistance			4.67

The overall U-value is then :

• $U = 1/R = 1/4.67 = 0.21 \text{ W m}^{-2} \text{ K}^{-1}$

The basic U-value calculation is relatively simple. In essence, the U-value can be calculated by finding the reciprocal of the sum of the thermal resistances of each material making up the building element in question. Note that, as well as the material resistances, the internal and external faces also have resistances, which must be added. These are fixed values. There are a number of standards that cover calculation

methods for thermal transmittance. Simple U-value calculations can be made in the following way, by considering the building element's construction layer-by-layer. Note, however, that this does not account for cold bridging (by wall ties for example), air gaps around insulation, or the different thermal properties of e.g. mortar joints. This example considers a cavity wall.

Material	Thickness	Conductivity (k-value)	Resistance = Thickness ÷ conductivity (R-value)
Outside surface	–	–	0.040 K m ² /W
Clay bricks	0.100 m	0.77 W/m·K	0.130 K m ² /W
Glasswool	0.100 m	0.04 W/m·K	2.500 K m ² /W
Concrete blocks	0.100 m	1.13 W/m·K	0.090 K m ² /W
Plaster	0.013 m	0.50 W/m·K	0.026 K m ² /W
Inside surface	–	–	0.130 K m ² /W
Total			2.916 K m²/W
U-value =		1 ÷ 2.916 =	0.343 W/m²K

Note that in the above example, the conductivities (k-values) of building materials are freely available online; in particular from manufacturers. In fact, using manufacturer data will improve accuracy, where specific products being specified are known at the time of calculation.

Measuring U-value

Whilst design calculations are theoretical, post-construction measurements can also be undertaken. These have the advantage of being able to account for workmanship. Thermal transmittance calculations for roofs or walls can be carried out using a heat flux meter. This consists of a thermopile sensor that is firmly fixed to the test area, to monitor the heat flow from inside to outside. Thermal transmittance is derived from dividing average heat flux (flow) by average temperature difference (between inside and outside) over a continuous period of about 2 weeks (or over a year in the case of a ground floor slab, due to heat storage in the ground).

The accuracy of measurements is dependent on a number of factors:

1. Magnitude of temperature difference (larger = more accurate)
2. Weather conditions (cloudy is better than sunny)
3. Good adhesion of thermopiles to test area
4. Duration of monitoring (longer duration enables a more accurate average)
5. More test points enable greater accuracy, to mitigate against anomalies
6. Two complicating factors that can affect the thermal transmittance properties of materials include:
7. Ambient temperature, due to latent heat among other factors
8. The effects of convection currents (increased convection contributes to heat flow)

Cities rationale

U-Factor of the materials typically published by the manufacturers are derived in accordance with ASHRAE or CIBSE guidelines for static conditions (or similar other recognized guidelines). However, the effective U-Factor of the material assemblies for building elements (walls and roofs) are different considering the dynamic internal and external environmental conditions which change as per variation in climatic conditions – external temperature (DBT/WBT), solar radiation, wind speed, etc. Hence the effectiveness of the materials in resisting heat flow through envelope would be different for each climate zone as well as cities within similar climate zones. To enable precise calculation of U-Factor, the tool needs information about the cities for which the U-Factor has to be calculated. The tool extracts critical weather information from Energy Plus weather data files of each city and calculates the effective U-Factor.

Addition of New Materials in the Database

The Thermal Properties database of construction materials developed by CARBSE Material Testing Laboratory at CEPT University contains an extensive list of materials. However, users are encouraged to submit new construction materials to evaluate their thermal properties as well as for inclusion into the database.

Conclusion :

The energy efficiency of a building is the extent to which the energy consumption per square meter of floor area of the building measures up to established energy consumption benchmarks for that particular type of building under defined climatic conditions. Building energy consumption benchmarks are representative values for common building types against which a building's actual performance can be compared.

The benchmarks are derived by analyzing data on different building types within a given country. Comparisons with simple benchmarks of annual energy use per square meter of floor area or treated floor area (kWh/m²/annum) allow the standard of energy efficiency to be assessed and priority areas for action to be identified. Benchmarks are applied mainly to heating, cooling, air-conditioning, ventilation, lighting, fans, pumps and controls, office or other electrical equipment, and electricity consumption for external lighting. The benchmarks used vary with the country and type of building.

The measure of heat loss through a material, referred to as the U-Value, is also used as a way of describing the energy performance of a building. The U-value refers to how well an element conducts heat from one side to the other by rating how much the heat the component allows to pass through it. They are the standard used in building codes for specifying the minimum energy efficiency values for windows, doors, walls and other exterior building components. U-values also rate the energy efficiency of the combined materials in a building

component or section. A low U-value indicates good energy efficiency. Windows, doors, walls and skylights can gain or lose heat, thereby increasing the energy required for cooling or heating. For this reason most building codes have set minimum standards for the energy efficiency of these components.

- At the moment due to lesser demand, these materials tend to carry higher purchasing cost
- Even though it brings enormous financial benefits in long term
- Most of the people are in mindset of choosing products and materials with cheapest initial cost, without concern for much else.
- One should expect the materials or the method of U-value to continue to be cheaper
- With time as supply and demand increase, and so as the energy efficient buildings

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55	Ar. Shivangi Doshi	A23654	Jodhpur
56	Ar. Shubhangi Doshi	A23655	Jodhpur
57	Ar. Chanda Khatri	A23656	Jodhpur
58	Ar. Harsh Vardhan Singh	A23657	Jodhpur
59	Ar. Aishwarya Soni	A23658	Jodhpur
60	Ar. Raman Singh Solanki	A23659	Jodhpur
61	Ar. Rajeev Purohit	A23660	Jodhpur
62	Ar. Prithvi Raj Chadha	A23661	Jodhpur
63	Ar. Harshita Dhankani	A23662	Jodhpur
64	Ar. Supriya Jain	A23663	Jodhpur
65	Ar. Agni Pratap Singh Rathore	A23664	Jodhpur
66	Ar. Gitesh Gupta	A23665	Rajasthan
67	Ar. Ratika Chandawat	A23666	Rajasthan
68	Ar. Amit Kumar	A23667	Rajasthan
69	Ar. Astha Singh	A23668	Rajasthan
70	Ar. Sakshi Kapoor	A23669	Rajasthan
71	Ar. Rajni Pankaj Malhotra	A23670	Rajasthan
72	Ar. Mahak Vangani	A23671	Jodhpur
73	Ar. Chiranjiv Banshiwal	A23672	Rajasthan
74	Ar. Abhishek Byadwal	A23673	Rajasthan
75	Ar. Noopur Baghel	A23674	Jodhpur
76	Ar. Lekhranj	A23675	Himachal Pradesh
77	Ar. Gagandeep	A23676	Bathinda
78	Ar. Abhinav Jain	A23677	Haryana
79	Ar. Sankalp Gupta	A23678	Uttar Pradesh

WELCOME NEW IIA MEMBERS

17th Com Dated 2nd October, 2019 at Trivandrum, Kerala.

Sr. No.	Name	Memb. No.	Place
80	Ar. Ravikrishna Reddy Kayala	A23679	Andhra Pradesh
81	Ar. Soumaya Kanti Ghosh	A23680	West Bengal
82	Ar. Tasqiya Sheikh	A23681	Goa
83	Ar. Brijesh Virendra Chinai	A23682	Mumbai
84	Ar. Vishwesh Vinayak Verenkar	A23683	Goa
85	Ar. Ruchi Bajpai	A23684	Uttar Pradesh
86	Ar. Arjun K J	A23685	Palakkad
87	Ar. Narendra Dattatray Gaikwad	A23686	Pune
88	Ar. Neda Shakil	A23687	New Delhi
89	Ar. Surbhi Goenka	A23688	Jharkhand
90	Ar. Harshita Kachchhap	A23689	Jharkhand
91	Ar. Tanay Modi	A23690	Jharkhand
92	Ar. Mritunjay Kumar	A23691	Jharkhand
93	Ar. Vijay Laxmi Bhagat	A23692	Jharkhand
94	Ar. Ranjit Murmu	A23693	Bihar
95	Ar. Anjali Kumari	A23694	Jharkhand
96	Ar. Gourav Kumar Besra	A23695	Jharkhand
97	Ar. Shashank Kumar	A23696	Jharkhand
98	Ar. Mittu Murmu	A23697	Jharkhand
99	Ar. Atul Kumar Kant	A23698	Jharkhand
100	Ar. MD Ishteyaque	A23699	Bihar
101	Ar. Abhishek Tirkey	A23700	Jharkhand
102	Ar. Sneha Suman Mukesh Agarwal	A23701	Jharkhand
103	Ar. Sajal Sharma	A23702	Delhi
104	Ar. Kusha Ahmed	A23703	Delhi
105	Ar. Deepak Kumar	A23704	Gurgaon
106	Ar. Garima Charaya	A23705	Haryana
107	Ar. Sunil Kumar K N	A23706	Bangalore
108	Ar. Arun Varghese M	A23707	Kerala
109	Ar. Balaji P	A23708	Tamil Nadu
110	Ar. M Prakash	A23709	Tamil Nadu
111	Ar. Prasad Madhukar Shrimandilkar	A23710	Pune
112	Ar. Pathik Divyang Jignesh Joshi	A23711	Mumbai
113	Ar. Abhilasha Pathik Joshi	A23712	Mumbai
114	Ar. Shashikant Shankar Wali	A23713	Pune
115	Ar. Riya Pradeep Parab	A23714	Mumbai
116	Ar. Paramjeet Kaur	A23715	Delhi
117	Ar. Hajira Anjum	A23716	Bangalore
118	Ar. Satish Kumar Reddy R	A23717	Telangana
119	Ar. Suresh V.	A23718	Telangana
120	Ar. Satish Kumar Varma Jampana	A23719	Telangana
121	Ar. Kalyan Kamani	A23720	Telangana
122	Ar. Hyder Aslam Md.	A23721	Telangana
123	Ar. K. J. CH. Kishore Kumar	A23722	Telangana
124	Ar. B H Naga Ravi Shanker	A23723	Telangana
125	Ar. Santosh Radheshyam Chourasia	A23724	Nagpur

Sr. No.	Name	Memb. No.	Place
126	Ar. Apurba Borah	A23725	Delhi
127	Ar. Rahul Vig	A23726	Panchkula
128	Ar. Prabhu M. D. Alias Vitthal Digambar	A23727	Goa
129	Ar. Kartik	A23728	Delhi
130	Ar. Aatmik Vij	A23729	New Delhi
131	Ar. Rahul	A23730	Haryana
132	Ar. Deepika	A23731	Haryana
133	Ar. Kriti Modi	A23732	Haryana
134	Ar. Anand	A23733	Haryana
135	Ar. Yatin Goyal	A23734	Haryana
136	Ar. Prince Juneja	A23735	Haryana
137	Ar. Tanushri Mahadeorao Kamble	A23736	Nagpur
138	Ar. Gaurav Gurjar	A23737	Delhi
139	Ar. Preeti Sagar	A23738	Uttar Pradesh
140	Ar. Apurv Agarwal	A23739	Bareilly
141	Ar. Atar Singh	A23740	Bareilly
142	Ar. Avitesh	A23741	Uttar Pradesh
143	Ar. Santosh Kumar Shukla	A23742	Uttar Pradesh
144	Ar. Rajnish Kamal	A23743	Bareilly
145	Ar. Shiyam Shankar C	A23744	Madurai
146	Ar. Vamshidhar B	A23745	Telangana
147	Ar. Raavi Mounish	A23746	Telangana
148	Ar. Siddhant Vijaykumar Suman Khade	A23747	New Mumbai
149	Ar. Aniket Arvind Vrushali Sawlekar	A23748	New Mumbai
150	Ar. Prachi Ajay Maindargi	A23749	New Mumbai
151	Ar. Rajeev Vinay Lunkad	A23750	Delhi
152	Ar. Mohit Manchanda	A23751	New Delhi
153	Ar. Ankit Yadav	A23752	Uttar Pradesh
154	Ar. Mayank Mausom	A23753	Uttar Pradesh
155	Ar. Yohan Sarosh Wadia	A23754	Surat
156	Ar. Julie Jyotindra Divetiya	A23755	Surat
157	Ar. Mimansa Diwan	A23756	Raipur
158	Ar. Mrinal Vaidya	A23757	Bhilai
159	Ar. Mustafa Quizar Hussain Kapadia	A23758	Raipur
160	Ar. Pankaj Kumar	A23759	Bhilai
161	Ar. Kabita Biswas	A23760	Raipur
162	Ar. Sonam Vaidya	A23761	Bhilai
163	Ar. Anurag Hardel	A23762	Raipur
164	Ar. Ayush Dadhich	A23763	Jodhpur
165	Ar. Furkan Baig Mirza	A23764	Jodhpur
166	Ar. Mohammed Haroon	A23765	Jodhpur
167	Ar. Varun Kawatra	A23766	Jodhpur
168	Ar. Darshan Dhankani	A23767	Jodhpur
169	Ar. Sunil Chauhan	A23768	Jodhpur
170	Ar. Sheela Lunkad	A23769	New Delhi
171	Ar. R. S. Preetha	A23770	Gurgaon

Tactical Urbanism For A New Urban India : An Experimental, Incremental And Participatory Approach To Designing Cities



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ABSTRACT : Systems, demography and life in Indian cities is facing complex transformation. Rapid urbanization has put forth the demand for a new thinking process of planned development. In recent past, small scale attempts to improve urban areas, referred a stactical urbanism, have inspired planners around the world to consider low-cost, experimental and incremental projects as a means to sustainable urban development. The momentum of tactical urbanism has been in creasing; however, the role of planners and the importance of such experiments in professional planning exercises, especially in India, remain undefined. The research investigates how tactical projects allow citizens to participate in urban change, and give planners a chance to develop inclusive, acceptable and sustainable planning policies over a period of time. Drawing satisfactory evidence on tactical approach to urban planning, findings of the research suggest that if our cities require big plans and policies, they also require small tactics, and the momentum of huge visionary policies can also be collectively attained by smaller tactical projects and schemes.

KEYWORDS : Incrementalism, Public Participation, Sustainable Development, Tactical Urbanism.

1. Introduction

Planners have been working to improve the quality of life in cities; however, high costs of making urban improvements, disagreement among stakeholders, and existing practices with long term perspectives, have made the exercise challenging. Literature suggests that tactical projects, if integrated with the systems-in-place, can enable incremental establishment of urban practices, and have economically feasible and socially acceptable outcomes in the long run. The research questions the efficacy of tactical urbanism in India : a country where local ideas have enormous potential and finance plays a lead role in planning, and identifies avenues where tactical projects can be employed to improve the urban landscape.

In order to differentiate tactical approach from the traditional planning processes, it is important to understand the difference and establish ideal linkages between strategies and tactics (Figure 1). Strategies operate from institutional centers, where the people with power exert control over a place while working in a regulatory framework. They are highly organized plans of action devised in response to conditions that are uncertain. In contrast to this, tactics are the response of the weak to such strategies (Blau et al., 2009). Such a perspective induces a thought that strategy makers, i.e., planners and government officials cannot be tactical urbanists since they are professionally restricted to work with a specific set of guidelines, which is not true.

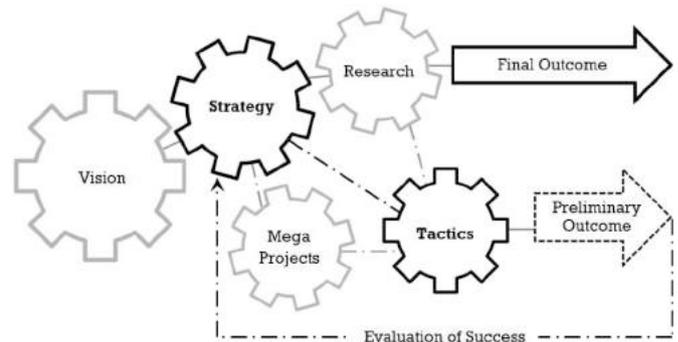


Fig. 1 : An Ideal Framework of Strategies and Tactics
Source : Author

1.1 Issues in the 'Strategic' Approach

Large scale urban transformation and mega-projects such as public transit systems, recreational and commercial complexes, convention centers and museums, riverfront developments and open public spaces etc., all require a large amount of financial capital and political support. Over these, rapid shifts in contemporary urban life, socio-economic transformations, and changing citizen interests make it difficult for planners to identify clear long term goals, a fundamental requirement of strategy-based planning processes. As a result, even with huge investments of time and money, the long term economic and social benefits of such large scale transformations are uncertain.

Strategy-based planning is an inflexible approach towards shifting social structures, economic changes, or new knowledge, and has limited opportunities for citizen engagement. Instead of asking citizens to contribute to incremental change at smaller scale, it asks citizens to respond to proposals outside their scope of understanding. Examples of such strategy-based approaches include master planning, long term development planning etc. The insights and learnings from strategic approach suggest searching for non-traditional alternatives of city building.

1.2 Significance of the 'Tactics' Approach

Traditional planning fails to adjust with the changing society and economy, creating a demand for non-traditional approaches. Tactical interventions, in the western countries, have come up as tools to improve neighborhoods and comprise of lesser risk for all stakeholders. They have realized the value of creativity and the strength of local citizens in solving issues that the government had rarely considered. For this reason, there has been a growing global interest among planners on how these projects can provide opportunities to increase flexibility and experimentation within the planning process. In less than a decade, the non-conventional tactical way of city-building has grown from unsanctioned interventions at the street scale to an internationally renowned movement.

Tactical urbanism has introduced 'society' and 'creativity' in planning process, and has successfully proved its capacity at small scales, such as neighborhoods and blocks, where social capital can be easily built. Understanding the capacity of tactical urbanism is very important for planners and officials involved in the public realm, as the scope of their work is now observing an increased interest from citizens and other stakeholders. Ultimately, the aim of urban planning is to improve the livability in cities, be it the 'strategic' or the 'tactical' way.

It is important to note that urban planners have to continue working as strategy makers since we need policies to create frameworks within which tactics can function and shape the development of cities over a long period of time. To simplify, we may say that tactics and strategies are simply different aspects of the same process. It is of more importance to realize that tactics are not at odds with strategies, but are just another tool planners can utilize.

Following sections of the research look at discourses that define the role and potential of tactical urbanism in solving Indian planning problems. To define the spectrum of tactical projects, literature on public participation, citizen initiatives, inclusive development, master planning etc. has been explored. A series of open-ended interviews with various actors, including citizens, academics, activists and officials, were conducted to understand the diverse perspectives on

the subject. The research also suggests a new 'framework' for incorporating tactical projects in planning processes prevalent in the country.

2. THEORETICAL FRAMEWORK

Jane Jacobs (1961) suggested that our cities are the laboratories of trial-error in planning. Even then, till today, the planning fraternity has failed to realize the role of informal actors and their ideas in urban development. Tactical Urbanism is a new phenomenon in which citizen-led movements attempt to solve urban problems with low-cost and small-scale interventions. It involves various approaches such as activation of various built and un-built properties, rejuvenation of existing market corridors, and involvement of informal actors who try unconventional ideas with an aim to not only achieve such projects, but to create changes that enhance the perception of a place, and if successful, become permanent.

2.1 Concept of Tactical Urbanism

Tactical Urbanism uses small scale and incremental projects to make improvements in economic, cultural and social conditions of a city; it is an approach in which future is built on small scale success and learnings are made from small scale failures. Brenner (2015) defines tactical urbanism as 'an approach that promotes a grassroots, participatory, hands-on, do-it-yourself vision of urban restructuring, in which those who are most directly affected by an issue actively mobilize to address it, and may continually mobilize to influence the evolution of goals'. It is an open-source model of action : a form of re-appropriation of urban space by its users.

2.2 Character of 'Tactics' Approach

Most of the research on temporary uses, a key premise to the concept of tactical urbanism has come from Western Europe. Oswalt et al. (2003) suggest that specific vacant sites tend to attract specific temporary uses that grow up in a network, developing clusters. These temporary uses have a tendency to flourish with negligible investment and in most cases act as laboratories for experimentation of different cultures and new economies. The most common examples of such temporary use are the street markets of Indian cities.

Based on the responses from interviews of subject experts, surveys of various urban actors and stakeholders, and as suggested by relevant literature, tactical urbanism needs to be embedded with following characteristics for its successful implementation in Indian scenario:

- Tactical urbanism should be used as a phased approach to instigate change, possessing a long term vision with initial projects acting as catalysts for this vision. Its focus shall be on short term commitments but realistic expectations with low risks and possibilities for bigger rewards.

- It should be based on rigorous involvement and cooperation between citizens, government and various stakeholders such as NGOs, private institutions etc. where the government needs to be involved more as an enabler than controller.
- Tactical projects should be inspired by the context in which they are undertaken, appreciating local ideas for local challenges.
- Tactical urbanism, in contrast to formal planning processes of India, should be allowed to remain 'open-sourced' for its customization by anyone who wishes to contribute their perspectives and expertise.

2.3 Benefits of Tactical Urbanism

Tactical Urbanism holds the potential to guide urban development in a citizen sensitive and better-informed fashion. Kennedy (2011) identifies reasons for failure of public participation in conventional planning approaches (Figure 2) that can be overcome by an engaging incremental tactics approach. Haydn and Temel (2006) suggest that tactical urbanism increases the diversity of people shaping urban space. Cumberlidge and Musgrave (2007) argue that it creates opportunities in new directions and challenges the existing state of affairs. Blumner (2006) finds it attractive and interesting to people. Overmeyer (2007) looks at it from an economic perspective, considering it as a means to generate employment and provide space for growth of new entrepreneurs. These benefits, further, are exponential in culturally robust setups, for instance, Indian cities.

3. CLARIFYING DISCOURSES

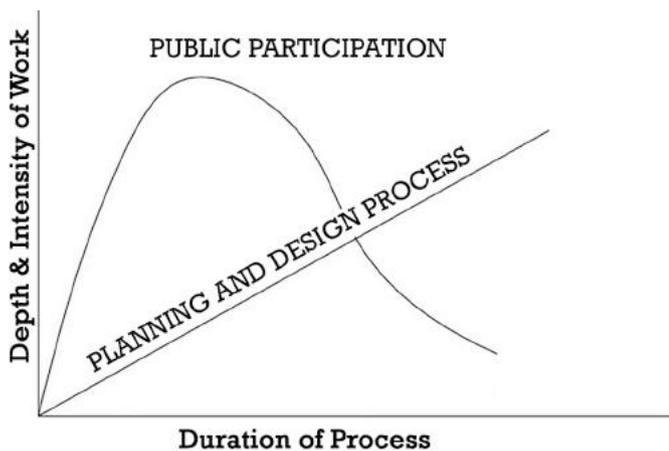
Tactical Urbanism, being a new concept of the 21st century, has gained most of its significance in the last decade. This has caused multiple opinions to emerge on the concept and vague terminology being used to describe it. This section clarifies major discourses on the concept, so as to simplify the interpretation of this approach.

3.1 Spectrum of 'Sanctioning'

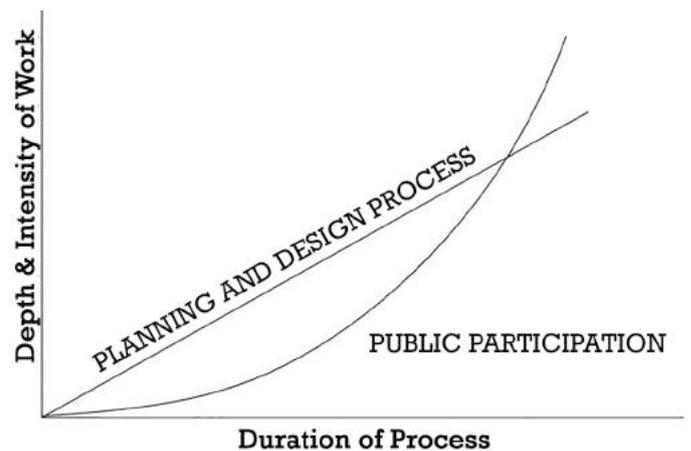
Tactical projects, in Indian scenario, can be placed across a spectrum of 'unsanctioned' to 'sanctioned' efforts. Here, the word 'unsanctioned' does not make the action or actor illegal; instead it denotes that these projects may lie outside a recognized process. In most cases, they emerge as unsanctioned interventions but their success brings them to the sanctioned side. In such a manner, small initiatives can gain value in planning process, the key behind the concept of tactical urbanism. For instance, top down unsanctioned efforts include the Delhi Odd-Even Transport Scheme, and bottom up efforts include Raahgiri Day (Figure 3), a weekend practice now prevalent in various Indian cities. These examples have well illustrated that the unsanctioned tactical approach can solve an urban problem by simple and quick solutions, which according to the current governance frameworks, may be unsanctioned by authorities. Lydon and Garcia (2015), however, suggest that the appeal of tactical urbanism is such that people often cannot tell the difference between sanctioned and unsanctioned projects, but simply appreciate the human-centric approach at the heart of this growing movement.



Fig. 3 : Street Reclamation for Public Use on Raahgiri Day in Delhi. Source : PPS (2015)



Case I. Public heavily involved early, rarely with any expertise in assignment, only to become less engaged as the process moves.



Case II. Public is not involved properly in the early stages, but later asked to engage intensely and exhibit ownership and stewardship.

*Fig. 2 : Public Participation in Conventional Planning Approaches
 Source : Kennedy (2011).*

3.2 Incrementalism based on Experimentation

In tactical urbanism, pilot projects are carried out and their results are observed and measured over a period of time, i.e., experimentation. Tactical and temporary uses, thus, behave as stairs to the permanent end of a project, i.e., incrementalism. Such an approach allows society to learn through practice. The advantage of incrementalism is that if inexpensive and flexible experiments fail, adjustments can be made to them before taking the next step to larger investments. In such a scenario, the entire budget will not be wasted but the future plans may be adjusted to digest the lessons learnt from it. Such experimentation, in fact, supports the dynamics of cities and if carried out well, can become the initiating step for lasting changes. The western countries have already incorporated such temporary experiments in their formal planning process, that ultimately that the shape of incremental projects if they yield positive outputs (Figure 4).

In Mumbai, the HP Junction underwent an overnight makeover, where roads were redesigned using very simple tools like traffic cones and paint – aimed at fixing the road for safe pedestrian movement. The new intersection design(Figure 5) introduced tighter corner radii, improved pedestrian space, and median refuge islands to shape the street geometry. WRI India, in collaboration with the Municipal Corporation of Greater Mumbai, Mumbai traffic police, and a coalition of 'street-fighters' under the Bloomberg Philanthropies Initiative for Global Road Safety, undertook the project. The trial was a major success as the intersection improvement led to a 30% reduction in pedestrian crossing distances, and reduced the number of pedestrian-vehicular encounters. The junction is now under the process of sanctioning: the re-design being devised from inferences of the overnight pilot project.

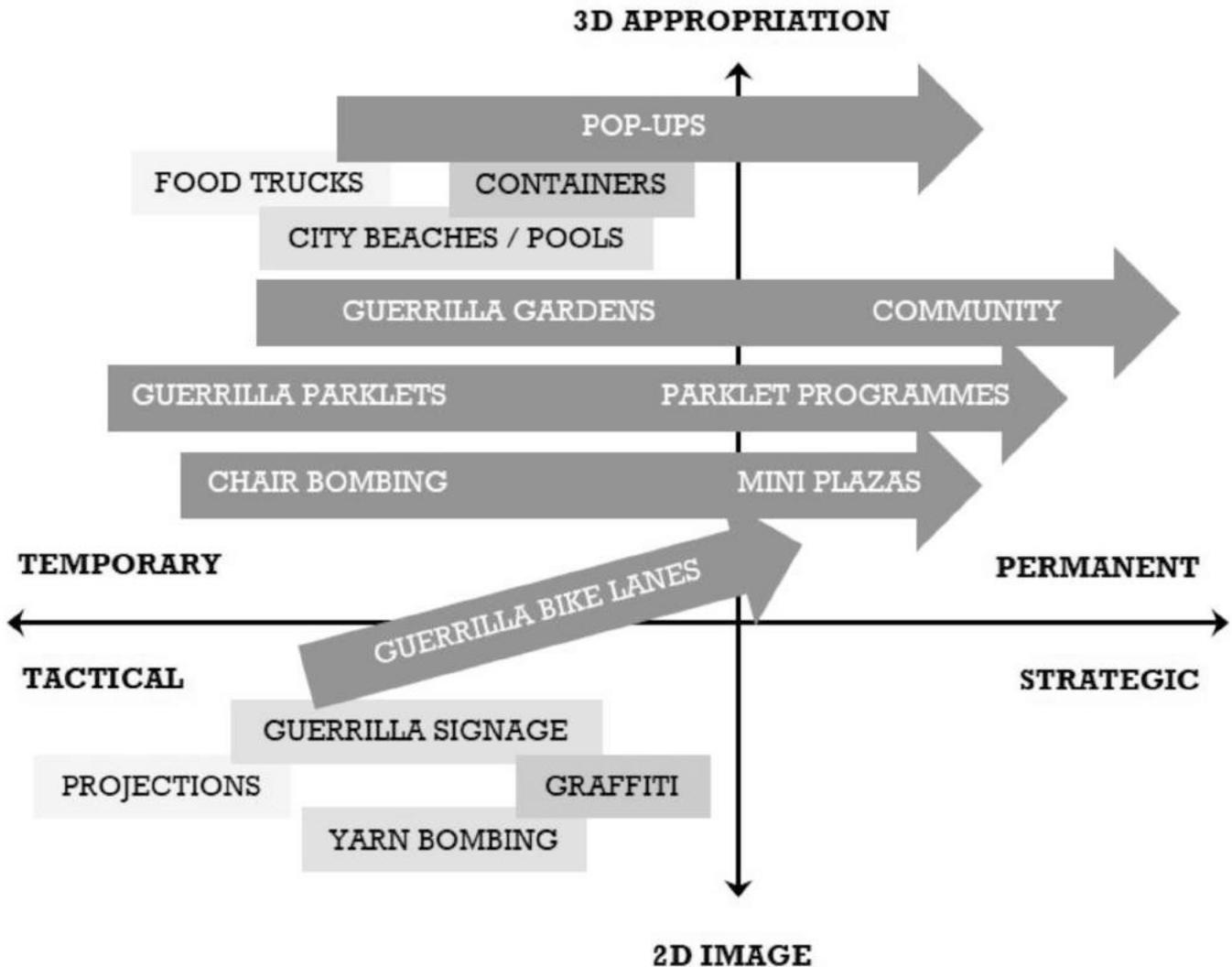


Fig. 4 : Temporary Experiments transformed into Incremental Projects in the Western Countries
 Source : Dovey (2016)



*Fig. 5 : HP Junction's (Mumbai) Tactical Makeover
Source: Tak(2017)*

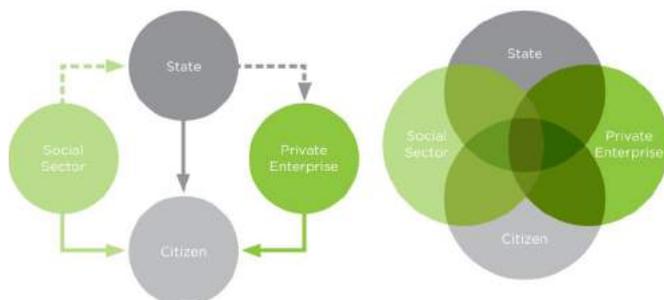
Tactical urbanism can merge present needs with the available capital. Also, if the public gets to participate in the experimentation, even at the smallest level, there are greater chances of gaining more public support for upcoming permanent changes. This involvement of public in the physical testing of ideas will allow more inputs from them regarding their expectations, which is never possible in the traditional public participation processes.

3.3 Meaning for Various Stakeholders

Tactical urbanism holds different meanings for different stakeholders. It questions the traditional power dynamics by introducing a co-production ideology for cities (Figure 6). For citizens, tactical urbanism can be a tool to overcome the weak functioning of the government and improve their cities themselves. For authorities, it can allow experimental implementation to test ideas and benefits much before the

complete implementation of the project. Activists can use tactical urbanism to demonstrate how the horizontal exchange of knowledge, instead of the vertical flow, can change and improve cities (Lydon and Garcia, 2015).

A successful project in India benefiting all stakeholders based on the ideals of tactical urbanism is the Yerwada Slum Upgrade Project in Pune. Community workshops with Prasanna Desai architects used 3-dimensional models of the existing settlement to give residents perspective on their communities' space, street hierarchy, density etc. Full-size house models were constructed from colorful cloth walls and bamboo framing, allowing slum dwellers to visualize size and layout. Residents helped determine the final layouts, maintaining existing street patterns and housing footprints. Once the houses will be built, each family will receive a ninety-nine-year lease and the community finally will become a legal colony. Though such tactical projects involve risks for all stakeholders, these risks are surely much lower than the ones that would have emerged from ineffective citizen participation or a rejected mega-project.



*Fig. 6 : Changing relationships in delivering public outcomes
Source : Christiansen and Bunt (2012)*

4. TACTICAL URBANISM IN INDIAN PLANNING PRACTICE

Short-term actions, temporary uses, citizen driven urban initiatives etc. have long existed in India. For instance, street festivals, encroachments for ceremonies, fairs and temporary markets, neighbourhood activities etc. can be seen throughout the year with an 'unsanctioned' yet effective use of the public land like streets, under-utilized land and other available spatial resources. However, there still does not exist

any framework to incorporate these projects in the planning practice. Under such circumstances, it becomes important to assess capacities of tactical urbanism, and devise an environment for the approach to flourish. The section looks at the current existence of tactical projects in India, the challenges they face, and the potential they have to support the planning framework of the country.

4.1 Background

The strong presence of tactical projects calls for an evaluation of the current urban scenario so as to identify various causes behind the recent widespread growth of this trend. Inferences of the evaluation have been listed below :

- The growing economic crisis and failure of the government to meet the needs of various economic sections of the society. For instance, pop-up markets by artists, commonly known as Banjara Markets, have come up in various mega cities like Bangalore, Gurgaon and Pune.
- Use of technology and internet by small entrepreneurs and organizations to identify ways to promote their businesses. For example, Indore's mobile application based bicycle sharing system promotes use of rental bicycles for local transportation.
- Change in the way how people wish to use the public space and what they expect to see in their neighborhood or block. E.g. huge amounts of citizen participation in public events like Raahgiri Day or neighborhood events like Play Streets, Gurgaon.
- Growing interest and responsibility among citizens to undertake basic improvements for betterment of their neighborhoods. For instance, increased awareness and interest among resident associations such as URJA (United Residents Joint Action), Delhi.

Tactical projects possess the power to challenge the role of authorities in shaping and controlling urban space, and their strength is visible by the control these authorities exert to close down such interventions. If the citizens continue to prove their role as shapers of the urban space, the weakening of state control is assured. It is thus a demand of time that authorities become open towards citizen ideas, so as to reduce germinating stakeholder conflicts, and collaboratively plan better urban futures.

4.2 Challenges

Formal planning processes and unsanctioned tactical initiatives appear to be at odds with each other currently.

While tactical projects are gaining a lot of popularity, it is still a challenge to integrate such projects in the planning practice for the following reasons :

- The ways by which tactical projects can be incorporated in planning practice, and relationships that can exist between various stakeholders, remain unclear.
- There exists resistance from planners to support tactical projects because of official protocols and laid guidelines. Further, the existing frameworks force administrators to become unwilling to support such actions as they do not occur under planning regulations. In fact, the existing plans do not permit any flexibility or scope for tactical uses. Thus, the planners consider risks and liability issues while considering such projects.
- Government officials also have personal resistances towards accepting new planning approaches and lack comfort while working on such projects. The lack of taking risks, repellant planning culture and an absence of support for innovation within the municipal bodies adds to this resistance.
- Citizens and other stakeholders, who follow such an unsanctioned approach, are always afraid to work with the officials because their projects are referred to as 'illegal' under the current planning regulations.
- Planners often have to coordinate with various municipal departments who exercise control over the public spaces. Such tedious and slow bureaucratic overlapping limits the ability to create quick tactical changes. Weak working relationships between various government bodies act as hurdles to successful tactical projects. There exists a need to create trust between various agencies and departments since their individual concerns could arrest a beneficial project from being completed or even started.
- Due to huge population and diversity in Indian cities, it becomes difficult for planners to balance an effective citizen engagement with quick project implementation. Further, citizens lack interest in improving their neighborhoods in various cases.

There exists little literature on practical considerations for planning fraternity who wish to show interest in tactical projects. Informal tactics, of course, require formal guidelines to meet reality since the planning process solely relies on sets of rules and regulations. Thus, an absence of academic research and the habit of sticking to rules restricts planners from focusing on this trend.

4.3 Potential

Tactical urbanism holds the potential to be incorporated in planning practice. The approach can allow urban planners to observe potential impacts of any interventions on the ground and make adjustments before committing the time and resources to complete long-term projects. The temporary nature of tactical projects will also allow cities to slowly absorb the changes being created. Tactical urbanism can be a suitable tool for place-making as it allows the creation of attractive and active urban space, which, in most cases, is recognized by citizens and community. Such projects possess the capability of boosting local economy at affordable investment costs.

Planners can use these projects as a mechanism to actively engage citizens in city-building, and hence quickly build trust amongst various interest groups in the starting stages itself. Tactical projects can be considered as a new path for consultation with communities where citizens get a chance to experience projects instead of just being shown the proposed plan documents. Several opponents from the community can even be converted into supporters if they get a chance to see and experience benefits of the planned interventions.

Government-led tactical urbanism can allow for more effective conversations with citizens and have a better reflection of their demands. Citizen-led tactical urbanism has scope for horizontal learning and can be a good way to promote the bottom-up approach in developing cities.

5. CONCLUSION

Traditional planning processes are not adaptive enough to address the constantly changing social and economic scenario in Indian cities. Though tactical use of space exists from thousands of years, it is now that this practice has gained attention of authors worldwide, and a number of key texts have appeared that assess and promote it. Tactical urbanism is a successful method for finding opportunity in situations of uncertainty and crisis. However, since tactical urbanism is a growing concept yet, researches that will analyse tactical projects over time will determine if these projects are able to address community interests in the long-term and remain adaptive and flexible over time.

Opportunities to apply tactical urbanism exist everywhere around us, but tactical urbanism can succeed only if someone from us takes action. The 21st century demands an understanding of changing planning paradigms, one being tactical urbanism. If urbanists don't answer what tactics can do for a city, what citizens can do for a city will always be a question. The research has aimed to embed in the audience the power of tactical urbanism, and it can prove successful only if planners accept this approach, and attempt to utilize it for betterment of the society. The findings of the research create more debate about, emphasize opportunities for research on, and encourage experimentation with tactical projects.

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Saving the Waterhole : A Study of India's Depleting Water Resources and Emerging Solutions of Revival



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ABSTRACT : *By 2050, the world population is estimated to reach 9.8 billion; global temperatures are anticipated to rise by 1.5°C; 5 billion people are projected to experience water scarcity due to plummeting groundwater tables and climate change.*

This scarcity of water will in turn result in increased cost of food and energy generation, impacting economic growth. Out of 17 SDGs of Agenda 2030, ten deal directly or indirectly with water; ignoring the issue will interfere with the mission of NITI Ayog.

India is largely dependent on monsoons for its water requirements. Droughts and farmer suicides are common. Urban flooding, polluted water sources, leaks, eutrophication and siltation of water bodies pose additional challenges to a water stressed nation. Climate change is contributing to the water problem, but it need not be so.

The paper, examines the current status and impending water crisis facing India and the world. It meanders through the water-rich history and harvesting techniques of traditional India and explores innovative solutions employed across the globe, to deal with water shortage. It delves on how Israel, comprising of 60% desert and 40% semi-arid land, became a world leader in water management.

The paper, probes into traditional knowledge of the people, biomimicry, and innovative technology- to propose systemic approaches and policies relevant to our country, that would assist in managing water resources responsibly and address the increased water demands for our future cities. The hydraulic wisdom is extrapolated on present day scenario- to seek solutions for a water surplus future.

KEY WORDS : *Water Management; Water Harvesting; Groundwater tables*

1. Introduction

Our world is at the brink of water scarcity. By 2050, the world population is estimated to reach 9.8 billion; global temperatures are anticipated to rise by 1.5°C; 5 billion people are projected to experience shortage of water due to plummeting water tables and climate change. Global water demand is anticipated to rise by 55% and it is projected that more than 40% of the world population shall be living in severely water stressed regions.¹

All anthropogenic activities consume water. Agriculture, alone consumes 70% of the nation's fresh water withdrawals. Across the globe, drip or micro-irrigation techniques make up for a mere 5% of irrigated agricultural fields.² Drying rivers, dead lakes, low water tables, excessive withdrawal from borewells, erratic monsoons, surface and groundwater pollution, industrial spillage, are burdening the natural resources and challenging the demands for water. India, once a water-rich nation, is now severely water-stressed as per UN's World Water Development Report.³ Discarding traditional water harvesting systems as obsolete at times like these, adds insult

to injury. Ponds have been degraded to garbage dumps; wells have been allowed to 'die' due to neglect sans revival; borewells pierced deep within aqueducts have resulted in over-extraction; traditional water architecture of *kunds* and *baoris* has been reduced to tourist spots; rain water harvesting and groundwater recharge are considered optional instead of mandatory; farmers continue to grow water guzzling crops entirely unsuitable for water-scarce drought-prone regions.

Less rivers now meet the sea, and dry before reaching the ocean. 25% of the country is being subject to desertification. 80% of India relies on groundwater for drinking and irrigation purposes and much of it is filthy.⁴ The 2018 NITI Aayog report predicts that the next year will witness 21 urban cities running out of groundwater and by 2030, 40% of the country's citizens will have no access to clean drinking water. The worst hit, shall be the poor and marginalized sections of rural India. 70% of the available water is contaminated and scores poorly on the water quality index. Despite UN General Assembly's Resolution 64/292 that recognizes water and sanitation as 'essential human rights', 9 years later, tap water in India is not fit to drink.⁵



Fig.1. Ganga Ghats at Varanasi (photo courtesy: author)

PMAY is committed to housing 2 crore families by 2022 under Housing for All (HFA) initiative, and is aimed to build 100 smart cities. The Energy Conservation Building Code (ECBC) states that 66% of the country's building stock is yet to be constructed. In light of these statistics, India needs to ensure that we have enough water to fulfil these grand visions and meet anticipated water demands. NITI Aayog 2018 reports the current scenario as the 'worst' water crisis in Indian history.

Situation across the globe is equally dismal. The disastrous transformation of the Aral Sea to Aralkum desert, is an example of the far-reaching consequences of myopic human decisions.

2. Literature Review

2.1. Current scenario and future projections

India, has traditionally been a hydraulic culture and examples of water architecture span across the country. Water (jal), is considered as one of the panchmahabhuta -five basic elements that make up the universe. However, this reverence has declined in the past several decades, due to ignorance or neglect.

The holy river of Ganga, has long been controversial for the cremains, ablutionary and religious activities undertaken along its embankment. In May 2015, Namami Gange – the biggest ever initiative was undertaken by NMCG to clean the Ganga by 2020, 6 no mean feat, considering the Ganga is 2525 km long. In 2019, the maximum amount of faecal coliform (FC) recorded in the river was 30,000 MPN/ml- 12 times higher than the permissible limit. The river is polluted beyond its self-purification capacity. In 2019, water crisis sparked in several states of India. A train carrying 2.5 million litres of water was sent to Chennai from Jolarpettai, Vellore, since Chennai's 4 reservoirs ran dry creating a daily water deficit of about 200 million litres. In 2016, a similar water train was sent to parched Latur. No lessons seemed to have been learnt in the past 3 years. Throughout the country groundwater has plummeted

and borewells lie bereft of water. Varthur in Bangalore witnessed groundwater levels dipping below 1700 ft. in 2019.⁷ The WWDR 2016 report reveals that India is highly water stressed, with a water withdrawal to availability ratio of more than 0.4. Lakes in Hyderabad, record chemical pollution due to unrestricted spillage of waste from surrounding pharmaceutical companies. Thousands of dead fish were cleared from Thiruneermalai lake near Chennai in June 2019, due to rapid drying up of the lake caused by delayed monsoon.⁸ Drought-stricken Vidarbha and Marathwada regions have witnessed a twofold rise in farmer suicides, in the past 4 years.⁹ Water children of Aurangabad reported travelling 14km daily in the summer of 2019, to fetch water, as drought affected 7000 villages in Marathwada.¹⁰

2.2. India's Water Scarcity Scenario

Some of the reasons why India faces water scarcity are :

Monsoon Dependency : India is an agrarian country, predominantly rain-fed. The dependency on rivers and canals for flood irrigation, unscientific crop patterns, water mismanagement, irresponsible allocation and absence of stringent water policies accentuate the problem of shortage. 70% of a nation's water quota is used for irrigation, about 50% of which gets wasted due to flood-irrigation method.² Despite most of India being rain-blessed, rain water harvesting is unfortunately not a common urban practice.

Irresponsible agricultural patterns and policies : Marathwada experiences the highest number of loan related farmer suicides. The agricultural failings can be observed in the choice of crop plantation such as water-intensive sugarcane and rice which deplete groundwater table. Despite the water stress, Marathwada has over 70 sugar factories and Aurangabad has 16 water guzzling breweries and distilleries.¹¹ National policies incentivise the cultivation of rice and sugarcane, discouraging the growth of other crops that require less water, forcing farmers into making wrong choices.

Deforestation : Landslides are red flags against indiscriminate deforestation. Once trees are cut, the soil begins to loosen in the absence of robust roots that earlier held it together resulting in soil erosion, that could further lead to landslides or desertification - thus turning fertile lands, barren. Desertification adversely impacts the water cycle. It reduces the soil's water holding capacity, type of vegetation, transpiration potential, and ultimately results in reduced rainfall. The indiscriminate felling of trees near river beds has also contributed to the drying up of the rivers. In nature everything is inter-connected and cyclical.

Construction Industry : Urban flooding; contaminated raw water sources; plumbing leaks; eutrophication and siltation of water bodies, add to the challenges of a water-stressed nation. Leaks and faulty infrastructure amount to huge water losses. Construction and cooling consume large amounts of water, which can be saved up to 50% by embracing environmental consciousness. Climate change is affecting water cycles, monsoons are becoming less predictable and cloud seeding is not a sustainable solution.

2.3. Effects of Water Scarcity

Water scarcity is bound to affect day to day life adversely. It will result in :

- Increased food cost, due to the high water-footprint of food items. It typically takes 900 litres of water for 1 kg of wheat, 2500 litres for 1 kg of rice and 15,000 litres of water for 1 kg of beef production.¹² At a time when half of the world's population is struggling to meet basic needs, increase in food cost would result in socio-economic catastrophe.

- Increased cost of energy, since 90% of global power generation is water-intensive.
- Impact on economic growth. 'The next War will be fought over Water' observed former UN Gen. Sec. Mr. Ghali. 19% of the world's population without an access to clean water lives in India¹³. Lack of water mismanagement is anticipated to result in water wars and create water refugees.

Out of 17 Sustainable Development Goals (SDGs) of Agenda 2030, ten deal directly or indirectly with water; water shortage will compromise the mission of NITI Ayog- India's response to UN's SDGs.

2.4. Traditional Water Wisdom of India

India's hydraulic culture is witness to sophisticated water supply and sewage systems, dating back to the Indus Valley Civilization, 5000 years ago. The intricate water network of Dholavira and watershed architecture of Sultanate & Mughal Delhi is proof of India's water heritage. Water architecture of India is vast and varied. It includes wells (*kuaan*), ornate stepwells (*baoli or vav*), well-houses (*kupa*), stepped ponds (*johara*), artificial ponds (*kund*), man-made lakes (*tadaga or talab*), earthen dams, *tankas* or temple tanks, pools, rock-cut-cisterns, canals, sluices, riverside ritual platforms and lake embankments (*ghat*).¹⁴ *Rani kivav* in Patan, *baolis* of Bundi, well-houses in Himachal, *talao* at Sarkhejroza, and the 88 *ghats* of Varanasi, are engineering odes to water.

Animal effigies on the *talab* (tank) walls served as markers. If water in the reservoir touched the lower elephant it implied water availability for two years, and submerging the horse



Fig.2. Left to Right : Rani ki Vav in Patan; Dada Hari ni Vav in Ahmedabad; Surya Kund in Modhera (photo courtesy: author)

above ensured five. Carved stone pillars marked the catchment regions of *kunds* and *tankas* in Jaisalmer warning trespassers not to spit or despoil the surroundings.¹⁵ Female effigies stood beside water animals flanking the entrance to stepwells or waterbodies. History records that water architecture across India was often commissioned by women. These practical structures were exquisite in their craftsmanship. The *Dharmashastras* elaborate rituals that would make a water body potent and 'life-giving'.

In recent times, however we have become apathetic. Ahmedabad's 600-year old pol houses, were designed with rain water harvesting tanks within the basements. The arrival of piped water, and ensuing convenience, made people lose the traditional know-how.

India's hydrotechnical expertise and water conservation and restoration architecture is exemplary. They serve as reminders of our age-old wisdom and abundance, that now lies in a state of neglect and disenchantment. Today when the world rues helplessly about sinking groundwater tables and drying rivers, waterman of India – Rajendra Singh has revived 7 rivers and improved the groundwater table in Rajasthan by constructing over 11000 *johars* in the past 30 years.¹⁶ He insists that water revival is a reverent, community-driven and disciplined undertaking. '*When we bond with water, we care for it as one of our own and stop expecting government patronization*'. Sonam Wangchuk when asked, what inspired him to build the ice stupas, answered, '*What will you do, if your house is on fire? Will you extinguish it yourself or wait for someone else to do it? I saw my house on fire, and I did whatever I could to save it.*' These artificial glaciers now provide water to the fields of Ladakh till the warm months of May. Mission Kakatiya reports restoring 46000 water tanks in Telangana.¹⁷

2.5. Innovative Water Solutions Across the Globe

We are digging deeper in search of water. Arid regions like Libya, Jordan and Saudi Arabia are tapping into fossil water stored deep within the earth. Carbon intensive desalination plants are extensively being constructed across the wealthier coasts of the world.

Israel, the world-leader in water conservation, declared its water independence from the weather in October 2013. Israel which is 60% desert and rest semi-arid, is water-surplus and exports water to neighbouring Jordan and Palestine. The credit for Israel's centralized water abundance goes to its government policies and national consciousness, that prioritized water policies to ensure everyone has access to safe and reliable water. It has minimized its water pipe leaks to under 11%. World-over water leaks contribute to almost 40% losses. Israel treats 95% of its sewage and 85% of that treated recycled water is used for irrigation. The use of sub-surface drip irrigation saves about 60% water, also resulting in higher-quality crop yields and larger harvests - making Israel the

agricultural leader in the world using technological innovations like fertigation (fertilizer + irrigation) and nutrification. It is also the only country in the world which has reduced its desert cover.²

Singapore, faced with the water dilemma post 2061, when its 100 year contract with Malaysia shall come to an end, has developed the 'NEWater' project, which converts wastewater into highly purified potable water. By 2060, the NEWater plants anticipate meeting 55% of the country's future demands, and proceed towards water sustainability.¹⁸

In Ethiopia Architects Vittori and Vogler have built Warka Water Towers- 30 ft. tall, vase shaped water collector towers, made of nylon or polypropylene mesh, designed to capture up to 25 gallons of water daily.¹⁹

A number of atmospheric water generators have been developed across the globe to tackle the increasing demands for water. They capture water from humid air and function on the principles of radiant cooling and condensation. Eole Water's specialized windmill harvests more than 16 gallons of clean water per hour from the moisture in the air. They have developed solar powered water collectors capable of collecting 40 gallons of atmospheric water per day. The farmers of Chile and Peru have been harvesting cool morning breeze for decades using wire meshes as fog collectors.²⁰

The Las Palmas Water Theatre designed by Ar. Grimshaw in collaboration with Charlie Paton turned the natural desalination plant into an architectural marvel.²¹ Paton's Seawater Greenhouse, developed in response to global water crisis, uses solar energy and seawater to produce fresh water in arid regions. All these innovative solutions focus on creating fresh water while simultaneously aiming for carbon neutrality. Biomimicry, a relatively new field, focuses on what we can 'learn' from nature, instead of what we can 'extract' from it; urging designers to use nature as a model, measure and mentor.²²

Traditional societies across the world, revere nature, and practice sacred rituals to protect and preserve their water bodies and forests. Modern world is now awakening to the age-old wisdom that preservation is always community-driven and we need to respect the earth's natural cycles of revival. Soil serves as the container that holds and stores water within. If soil and its rich nutrients are lost to desertification – there shall be no water either. Water is often, erroneously, perceived as a single entity, ignoring surrounding vegetation and soil conditions. The health of contaminated soil and water should be restored through bio-remediation.

3. Path Forward

Prime Minister Modi announced Jal Shakti Scheme in 2019, to enhance conservation in water starved areas. MCGM's new policy under DP 2034, has made RWH systems mandatory in

Mumbai. Various other states have taken initiatives to implement water conservation and recharge, such as Jalyukt Shivar in Maharashtra, Mukhya Mantri Jal Swavalamban Abhiyan in Rajasthan, Mission Kakatiya in Telangana and Sujalam Sufalam in Gujrat.

Systemic solutions, relevant to our specific scenario, need to be applied to address water demands of our future cities.

Some measures to achieve water conservation are: reduce water consumption; save more water; recycle and reuse waste water; protect natural reservoirs from industrial effluents and warm water contamination; control siltation – from urban construction; avoid blockage of natural wells and ground aquifers; ban indiscriminate digging of bore wells; discourage use of fossil water; make Rain Water Harvesting (RWH) and groundwater recharge mandatory across the country; let no new construction without RWH be awarded an occupation certificate; use recycled water for irrigation; use micro drip irrigation; increase vegetative green cover; encourage tree plantation; employ xeriscaping; install moisture sensors; install water monitors.

Water conservation measures have been observed to be successful, when they are community-driven. A sense of ownership, civic responsibility and personal association with water is important to inspire change at an individual level. At a national level, these measures can be incorporated through government policies; intelligent water management plans and implementations; scientific application of soil and water remediation; incentivizing water saving and penalizing wastage and contamination. At the municipal level, ensure every building complex has a sewage treatment plant and RWH scheme; lay permeable paving and roads; maximize green cover; provide monetary incentives or tax subsidies for waste water recycling; install water monitors and low flow fixtures; award water conservation efforts; encourage incorporating green rating systems in construction such as GRIHA, IGBC, LEED etc.

4. Conclusion

To save available water and harvest more, is need of the hour. Lakes should not be lost to siltation; raw water reservoirs should not be compromised with impurities; leaks should be curtailed; rivers should be revived and groundwater table raised. The negligible cost of Municipal Water in urban India, results in its callous usage. Water monitoring and incentivising savings shall encourage citizens to value the priceless resource. Systemic changes in our country's water policies, a collective will to conserve water, reviving traditional water harvesting systems, and improved watershed management shall go a long way in ensuring that our nation which is currently heading towards severe water distress, is salvaged in time. Water restoration and replenishment needs to be taken up on a war mode.

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Understanding Street Vending And Exploring Need For A Vending Policy In Indian Scenario



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ABSTRACT : *Streets constitute a significant part of public space that help to promote social and economic conversation in building urban communities. These are the places of activity where people want to be and forms a setting of urban dwellers. Street as a public space is contested as it changes and takes various forms for many marginalized groups. Street vending adds vibrancy to the streets and aids in structuring the identity of the neighborhoods. Street vendors occupy one of the largest visible occupational groups in the Informal economy found on streets. This paper focuses on understanding street vending in India, and explores how a policy similar to Hawker Policy in Singapore may be implemented for generation of meaningful community.*

KEYWORDS : *Street vendor, Public life theories, urban public space, Social experience, Singapore.*

INTRODUCTION

Space for a street vendor in the city is highly defied. Today public space and streetscapes are shaped through interplay of politics, planning and local economy, when it needs to be understood as a space accessible to the public rather than merely a public domain of the city.

Street vendors are a prevalent sight on Indian urban space. The streets in India are chaotic yet easily accessible for the needs of everyday life of people. Street vending is an inherent presence on the streets of India wherein they adapt to the changing needs of the society. But this category of self-employed persons is yet to receive their legal acceptability and right to work.

How do we describe streets - as places for movement, or a backdrop for multifaceted functions? Whom do we call as the appropriate occupants of the city? The answer lies with us. "Public spaces are a window into cities soul" says Saron Zukin. The Indian streets are chaotic and crowded, yet convenient, and we associate it with our culture and tradition. The space

becomes a social experience that add to the vibrancy to the city life by adding meaning to our communities and neighbourhoods. From a normative point of view, the Street Vendors Bill (2014) and the National Policy on Street Vendors (2009) propose an 'integration' of the street vendors which goes beyond the 'allocation of space' by integrating vendors to cities fabric. However, the implementation of this policy at City level tells another story, partly because territories are arenas of contradictory interests among different stakeholders, with different levels of power to decide about the 'form' of the city. To this extent, the Singapore hawking policy was studied to understand interventions opted by the authorities to create an environment in which street vendors were valued as an integral part of city life, which in turn improves the lives and economic condition of street vendors.

Street vendors form an integral part of the socio-cultural and economic life of the Indian cities since ancient time. During the times of the Vijayanagar Empire, street vending mostly occurred in the form of selling of gold and silver ware. The folk tales told to children also speak of vending on streets in one form or the other.



Fig. 1 - Vending activities being an integral part of Identity of streets. a : Gandhi bazaar - Flowers, b : Commercial Street : Accessories, c : Avenue Road : Books [Source : Figure a, b, c Author].

Streets are where India transpires, where we grow up, where we come out for the bell rings of the vendor for the freeze pop worth one rupee popularly known as ek rupay ki pepsi, or the cotton candy. The street vendors provide us with practically everything close to our houses and sometimes right to our doorstep. Eatables, electronics, toys, cloths, we find them being sold on the streets. Bangalore's urban space of streets is occupied by about 2 lakh street vendors. The streets of Bangalore are identified with association of the materials they sell and vendors are an integral part of the identity and image of the streets. For instance, avenue road is known for books that vendors sell, Ghandi bazaar for flowers and fruits, S.P Road for electronics, and Commercial Street for accessories and jewellery for women. The streets impart identity and imageability to the cities and can aid in generating income by attracting tourists but still the vendors are struggling for access to public spaces in the cities.

Understanding Streets :

According to National Policy of Urban Street Vendors, 2004, by Government of India "A street vendor is broadly defined as a

person who offers goods or services for sale to the public without having a permanent built up structure but with a temporary static structure or mobile stall (or head load)". Street vendors can be stationary by occupying space on the pavements or other public/private areas, or they may be mobile that they move from place to place carrying their goods and services on push carts or in cycles or baskets on their heads, or may sell their goods and services in moving bus etc. There is no shortage of urban public area for commerce i.e. the 'edge space' between the buildings, however the foremost profitable locations to trade are at the busiest locations wherever competition for area is acute. To understand the functioning of the public space, it is necessary to understand how streets and users respond to the vending activities at the street and how the relationship between streets vendors and people respond to the built environment. Neighbourhood by neighbourhood, the city's footpaths must be reconfigured, disorderly footpaths must be made multifunctional.

According to urbanist Dan Bertolet 'people want to live in places that cultivate connectedness-to the physical city itself as well as the people in it'. This connectedness is fulfilled by the vendors at the streets. In her 1961 classic work the death and life of American cities, writer Jane Jacobs urges urban researchers and planners to understand streets and sidewalks for a way they really operate instead of its supposed use. Jane Jacobs describes interactions among residents and shopkeepers as "Street Ballet" as life in the streets can be rich and colourful. She found that, contrary to the modernist opinions, the streets with the greatest signs of chaos – like,



Fig. 2 - Street ballet : Streets acting as a space for interactions between the residents and the vendors which add urban vibrancy : M.G road Bengaluru. Source : street survey Feb 21 st 2016 by Author.



Fig. 3 - Streets as a meeting place and connection place and vending being an integral part of Bengaluru Streets, Source : a, b, c. by Author.

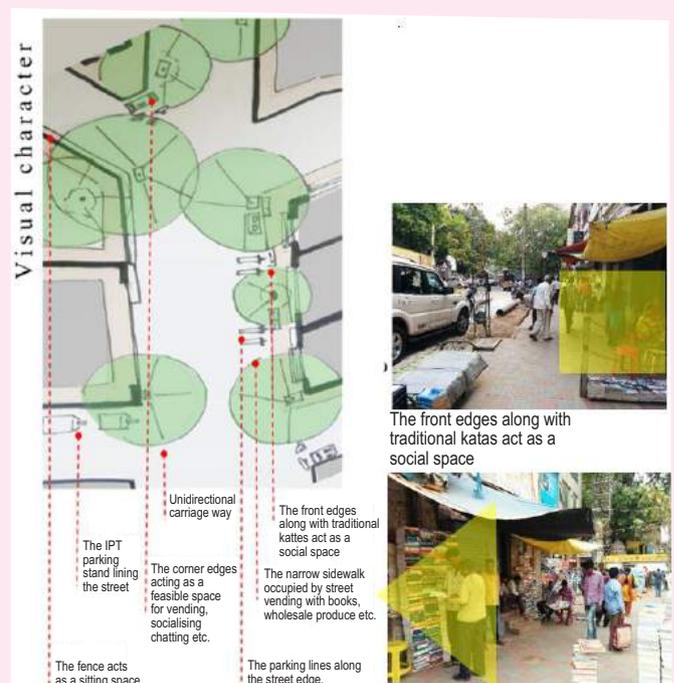


Fig. 4 - The plan of part of length of street to analyse the physical and spatial analysis of the Avenue road.

with children playing, old people sitting on kattas gossiping, and street vendors selling their goods to the young folks – that are the most vibrant, safest and liveable urban spaces (Figure 4 :avenue road –the book street of Bengaluru exhibiting the character). She finds the continuous daily presence of such people make the streets safe, arguing that such people act as the “eyes on the street,” who, due to their constant presence on the streets, will be able to quickly alert when something goes wrong and provide help. The design and the policy recommendations can be to hold on a rhythmic pattern of activity all through Stretch, capitalising the social activities to Figure The plan of part of length of street to analyse the physical and spatial analysis of the Avenue roadsupport street vending activity.

Singapore Street Hawker Policy :

With the existence of legal framework - The National Street Vendor Policy, it is really distressing that street vendors have not yet been accepted as an integral part of the Indian society. In the 1950s and 1960s, high unemployment rate led to an explosion in number of street vendors in Singapore. In this light, discussion about the Singapore's vending policy that led to a range of interventions to create an environment in which street vendors were valued as an integral part of city life seems a necessary starting point.

Licensing of Hawkers : In 1968-1969 Singapore government through the National Environment Agency carried out registration process for hawkers with stalls on any public streets or squares with the view of legalising hawking activity by providing hawking licence.

Management and ownership of hawker centres : The National Environment Agency was responsible in regulation, administration and implementation of hawkers' policies including management and improvement of hawker centres.

The agency developed centres along with redevelopers in the most convenient places in exchange for the land to provide hawking centres. This lead to vendors being placed to their nearest original point of business without losing their customers.

Rental policy in hawker centres : There are subsidized and non-subsidized stalls in the hawker centres. Subsidized stalls are rented to the hawkers who were relocated from the streets to hawker centres or those who were allocated stalls under the former hardship scheme. Non-subsidized stalls are operated by stall holders who pay a rent determined by professional valuations or tender exercise.

Regulation of food hygiene in cooked food stalls : The National Environment Agency has adopted many approaches to maintain public hygiene in cooked food stalls which features legislation, public education, grading of food outlets and a points demerit system.

Hawker entrepreneurship : Singapore government in 2013 introduced a hawker master training programme to encourage entrepreneurship through tie-ups with the private sector. The programme involved training the new ambitious entrepreneurs by the expert skilled persons to enhance and pass on their skill to the new generations.

Recent development of the hawker policy : In 2011 the Singapore government started to build the new hawker centres to meet the growing needs of the community. The Singapore hawking policy has helped not only to keep vendors contributing to the local economy, but also to keep clean and green urban public space while providing the urban poor means for their daily necessities. Singapore is the only country in the world to have all the vendors being issued the licence creating an inclusive environment for the urban poor, thereby aiding in the development of the country.



Fig. 5 - Tiong Bahru Market, Hawker centre
Source : <http://behindthefoodcarts.com/post/111918755924/hawker-stalls->



Fig. 6 - One of Singapore's most popular hawker centres is Maxwell Food Centre, Source : www.yoursingapore.com

Conclusion :

Though the hawker policy in Singapore was intended to ensure a more hygienic urban environment, the social and economic benefits gained from its implementation cannot be ignored. Part of the population with minimal formal education has a way to ensure decent and respectable living, while the whole experience of hawker centres is now a comprehensive part of Singapore's experience based tourism. It also provides an arena for positive social interaction between family and friends without the expenditure associated with modern day shopping centres and eateries.

In conclusion, street vendors can be assets to the urban system if they are given the opportunity to contribute to its development. The policies need to be framed inclusive from the users i.e. vendor's perspective from the planning process for better liveable communities. Providing exclusive spaces for informal sector and creating inclusive design similar to the strategies of Singapore Hawking Policy can be a step in the right direction. By legalizing and regulating street vending, the main concern of keeping the urban environment surrounding the vending activity centres clean becomes the responsibility of the street vendor. In this way the contradiction of deliberation of whether the vendors are a burden or a necessity by the consumers would be solved and the hawkers will also become a part of the city socio - economic fabric and would lead their life with equal dignity and respect.

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- *Street Vendors (Protection of Livelihood & Regulation of Street Vending) Bill*.



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'Anantya' - Diamond Interpretation Centre, Surat



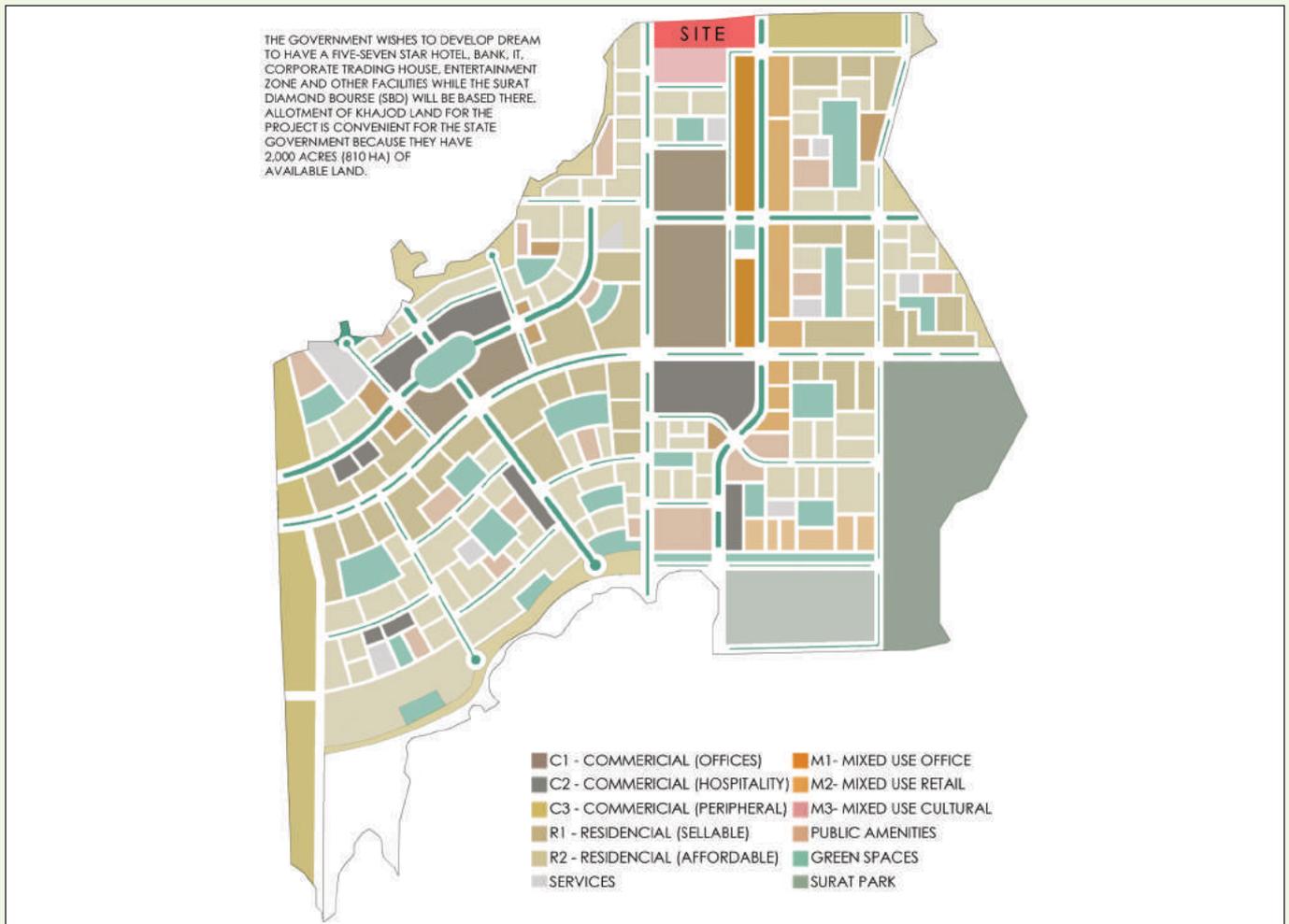
Ar. Yohan S. Wadia - Email : yohanswadia@gmail.com

Ar. Yohan S. Wadia is an alumnus of Faculty of Architecture, Sarvajani College of Engineering & Technology, Surat. He underwent his internship at DWP (Design Worldwide Partnerships), Vietnam in 2018. Yohan has a keen interest in Design Software and has explored its possibilities through his Design Thesis.

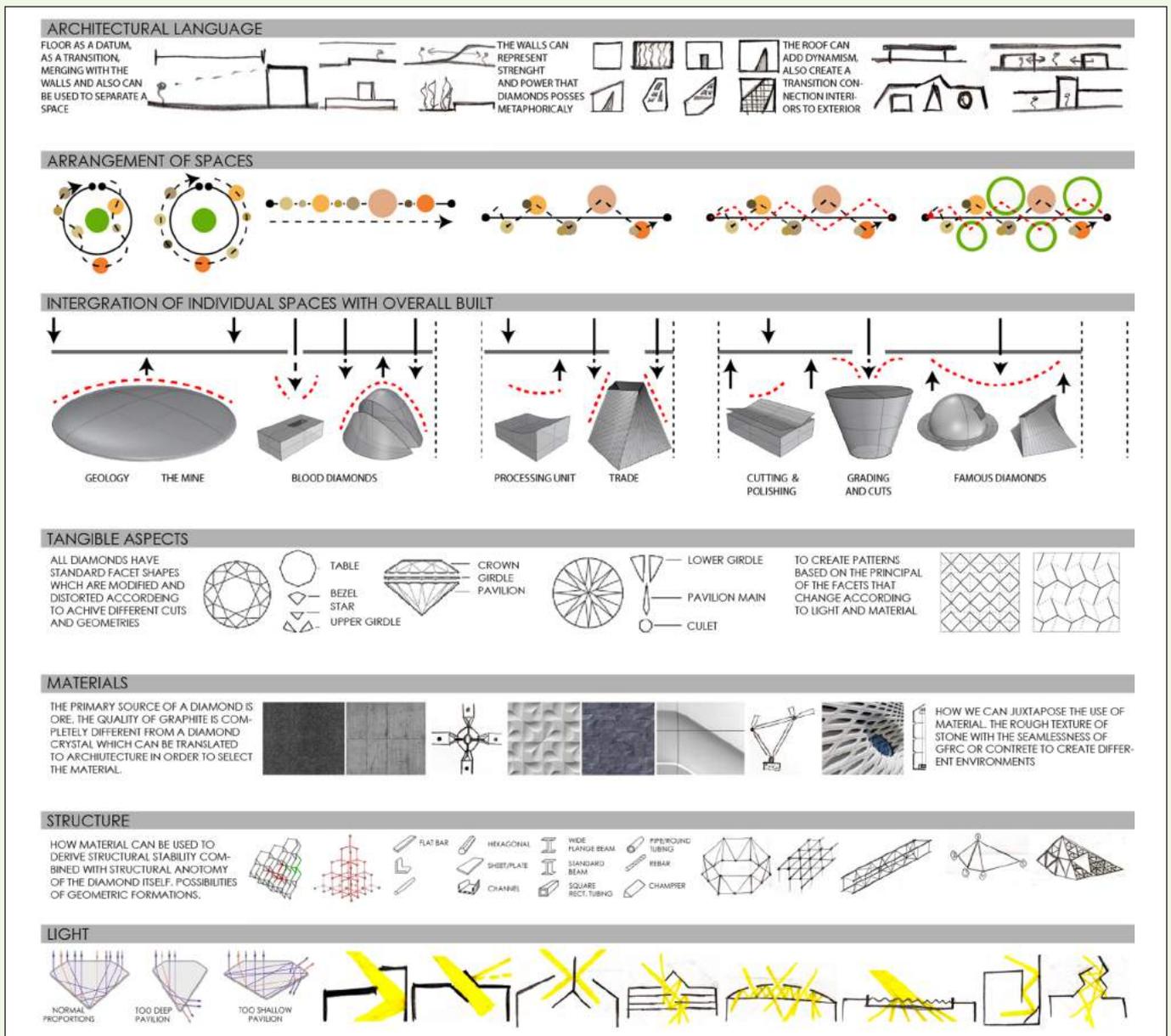
He believes that, Architecture is a means of expressing the aspirations of people. A dynamic tool that should respond and adapt to its tangible and intangible context; Architecture is a versatile element of society and has represented it for centuries, but also has the capacity to influence it.

'Anantya', meaning towards timelessness or eternity, represents the city of Surat, its people and the eternal diamond. The project not only provides an identity to Surat, but also connects Surat globally. Architecture here, I believe, not only represents place value, but also face value, globally. Architecture in this case, plays a major role in two ways; firstly representing the economic growth of the city and secondly being true to its curation of diamonds. The design considers how attributes of a diamond are translated into Architecture considering its shape, form, strength, purity, power, timelessness, etc. and also how the aspirations of a society are represented by Architecture.

Each city is known for its own speciality or a particular activity. For example Kanpur for its Leather Industry, Kolhapur for jiggery kolhapuri Leather Chapalls, Banaras is known for its Silk Fabrics and Works of Ivory, Bengaluru is known as the IT Hub of India. Similarly, Surat is known for its diamond cutting and polishing industry, which is not only known in India, but acts as a Centre for the world. The Surat Diamond Industry started in the 1950's and the market started booming in the 1960's and 1970's. The Surat diamond industry employees more than 9,00,000 people currently and its cutting and polishing industry has a combined turnover of US\$28 billion annually.



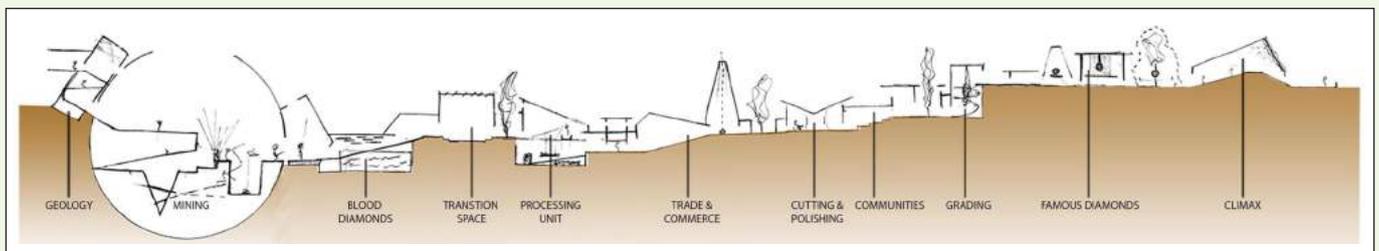
Site



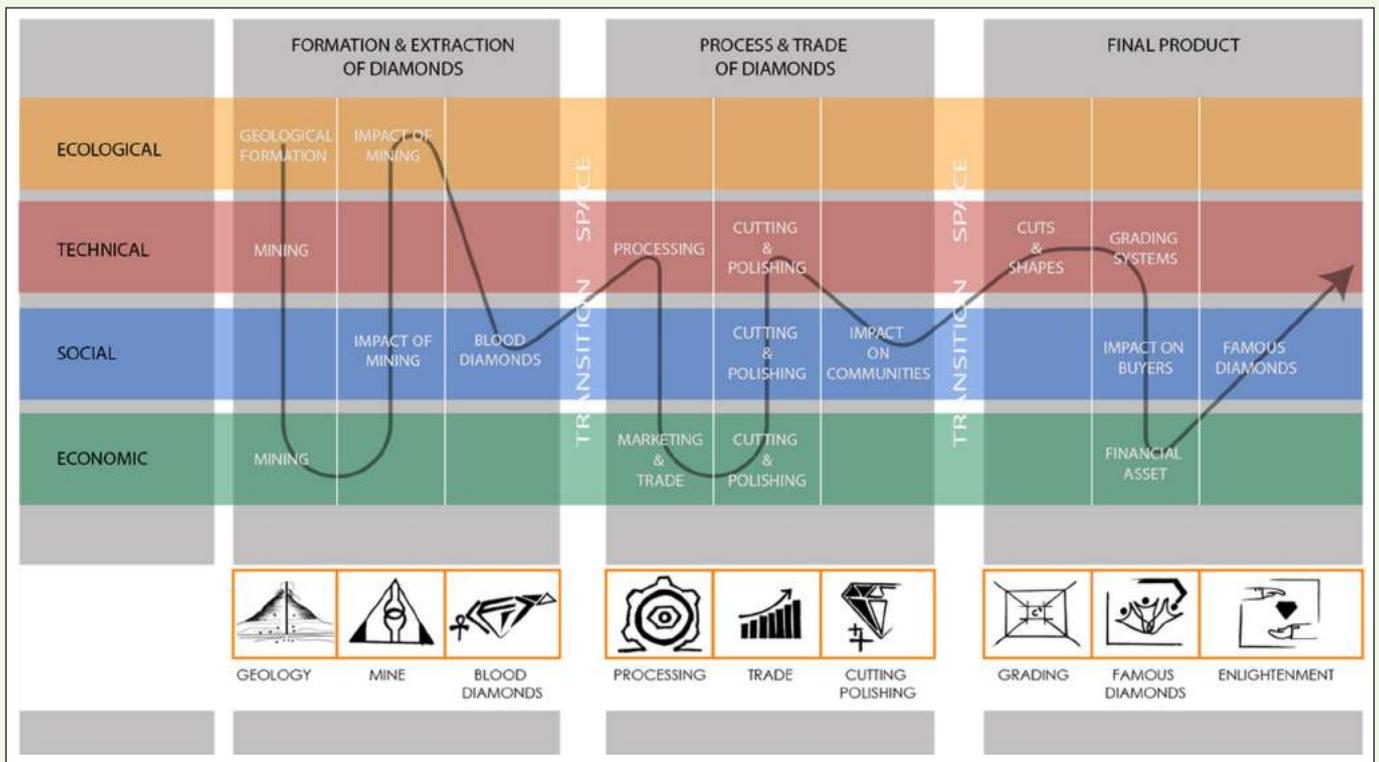
Studies

The largest Diamond Trading Centre of the world is coming up in Surat by 2020 and inspite of having such a large base of diamonds in the city of Surat, there is lack of awareness among people about how the industry has been operating since the past six decades and how it has made its mark as a centre for diamond cutting and polishing globally. Thus, the project attempts at clubbing Finance generating activities and tourism, by establishing a Diamond Centre for the people,

which will act as a Centre to create awareness about this multibillion dollar business and the diamond as a product. Therefore, the aim is to establish an Interpretation Centre for Diamonds, which reveals the story of diamonds and the Surat diamond industry to the world resulting in a public space for the people and enhancing the connection of the city to the world.



Volumetric Section



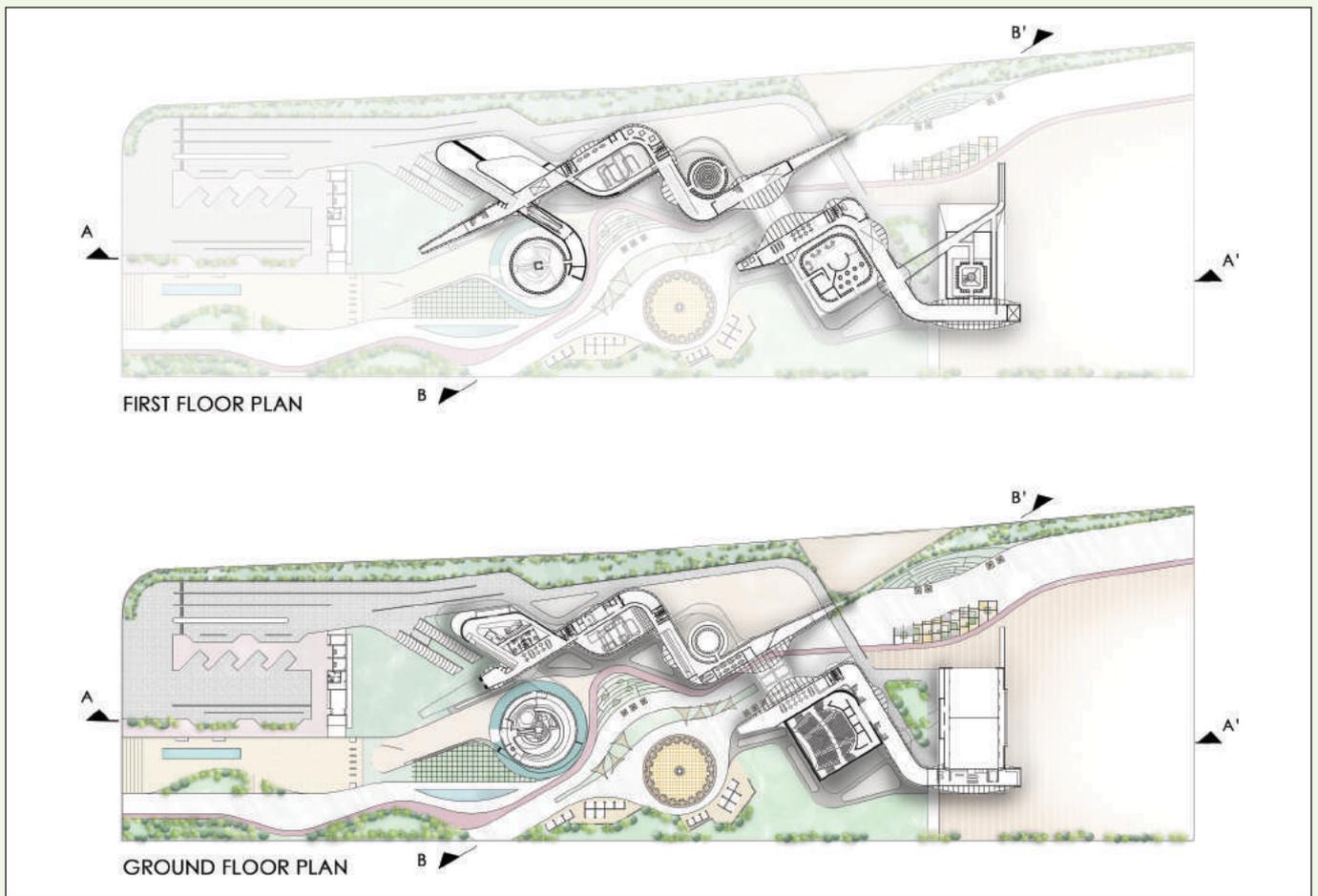
Curation

The site is selected carefully, as a major point of entry to the city, showcasing the image of the city as one enters. It is situated on a State Highway, which provides a long stretch for people to visualize the building from a far and a varying angles. The linear site provides parallel views from the road and therefore the built mass is intentionally located at an angle, while the building turns itself as it progresses to create a surprise in the minds of the people. The built does not reveal itself at once, but unfolds itself as one progresses. The public realm is designed such that it cuts through the built and

integrates with the landscape. Thus, representing the street, which the typical Surti thoroughly enjoys, whether it is shopping or food or simply enjoying an evening out.

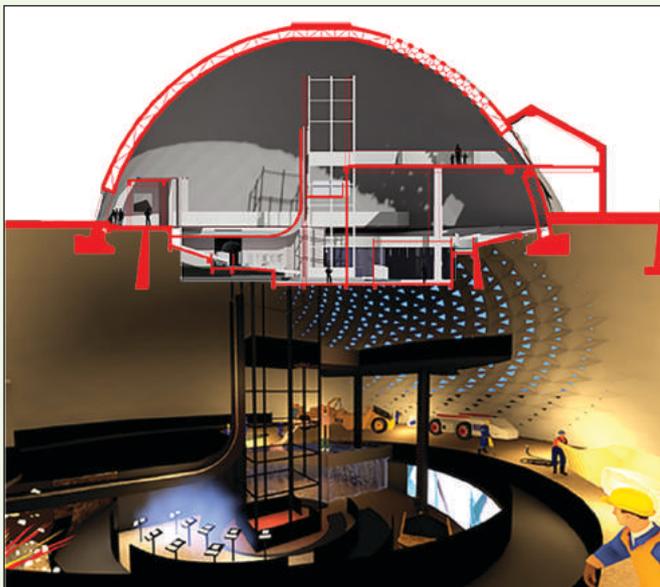
Spatial configurations within the building are based on the overall diamond trade of the world, from the birth of a diamond to the final product, giving the user a complete experience. Spaces are designed based on experiential quality and metaphorically representing events, rather than as a store of old artefacts, which can get monotonous.



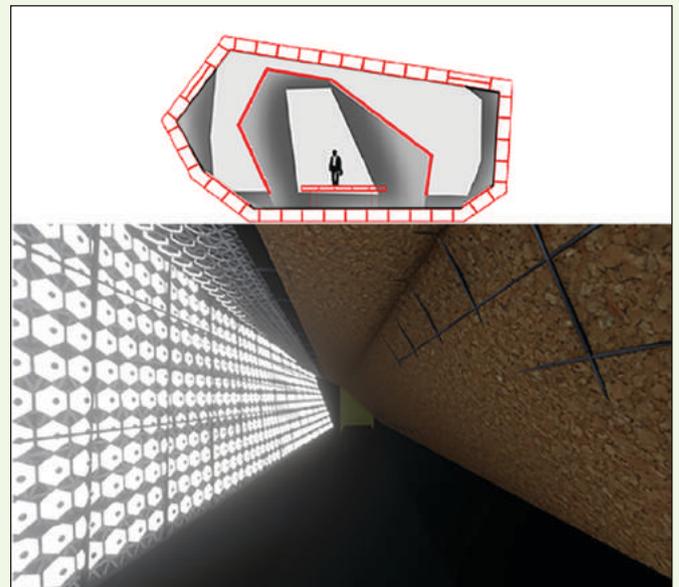


Visitors start their journey by entering the complex through the landscape which frames the building and also compliments it. People enter the first gallery, **Udbhav**, meaning birth or germination, which in this context refers to the birth place of a diamond, the mine. Visitors here, get a complete experience, gaining knowledge of different types of mining processes.

The next gallery showcases the **Blood Diamonds**, mines which brought wealth to certain nations but also suffering and destruction in most African countries. This gallery portrays the suffering and menace inflicted to those nations and also its connection to the city of Surat.

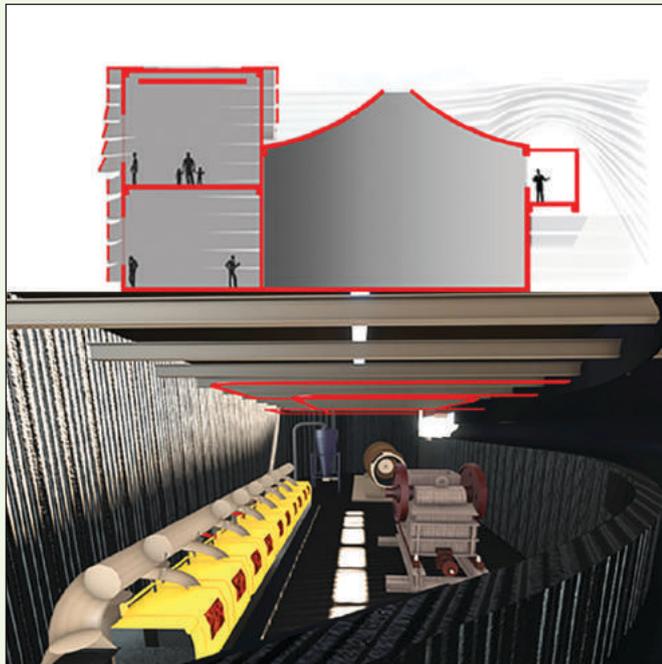


Udbhav - The Mine



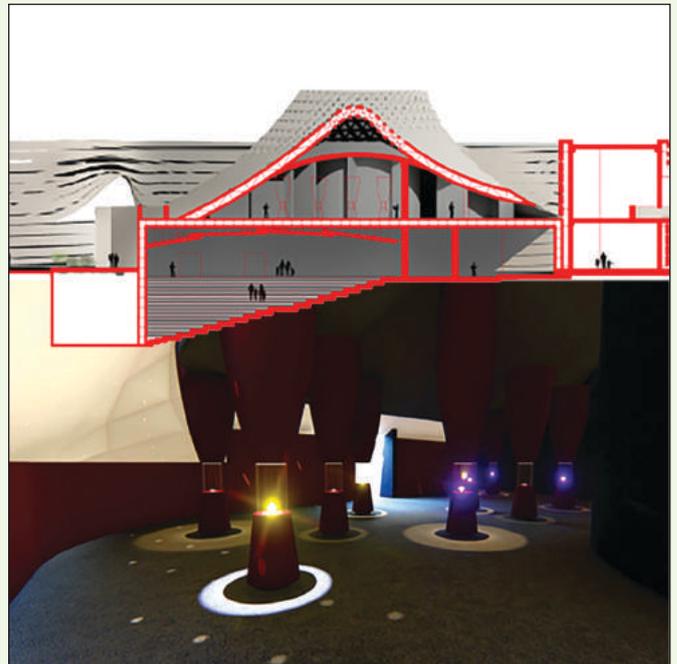
Blood Diamonds

After the ore is collected, it is sent to the processing unit to separate the crystals. The user has a complete experience of the **processing unit** and gains the knowledge of the technique and the machinery used.



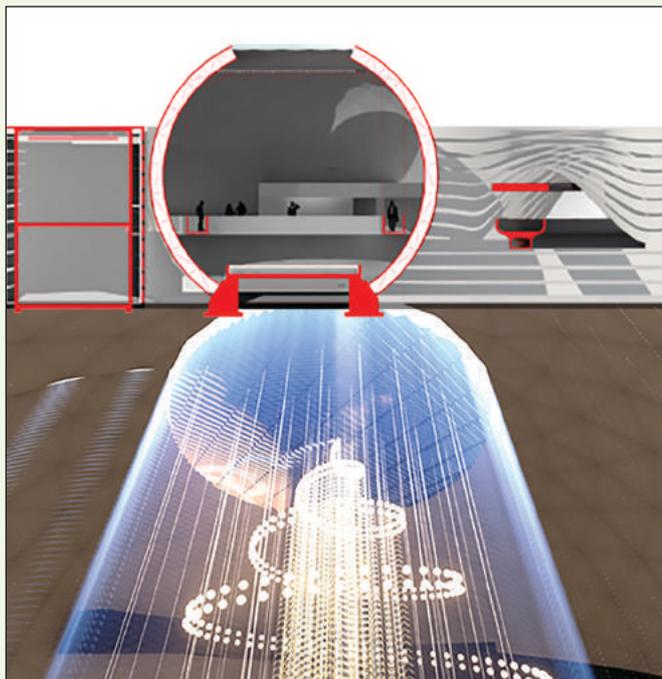
Processing Unit

Ujjwal, meaning the brightening, in context it is the gallery which gives the user the knowledge of the cutting and polishing techniques, getting hands on experience with the *karigars* of Surat and also seeing the famous diamonds, their different cuts and shapes.



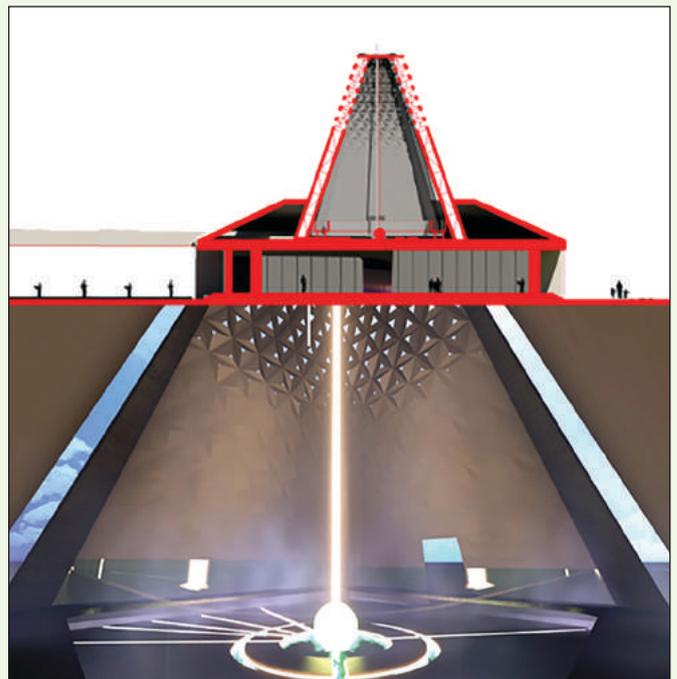
Ujjwal - Cutting & Polishing

Utdhan – showcases Trade which was controlled by demand - supply and marketing the diamond as a product which symbolises immortality. This gallery is designed to give the user the experience of timelessness, metaphorically representing immortality.



Utdhan - The Trade

Smriti, meaning enlightenment is the next gallery, where seven water streams represent the axis drawn from a place on earth where diamonds are found and the centre is Surat where they all come to get their final identity or *aakar*.



Smriti - Enlightenment

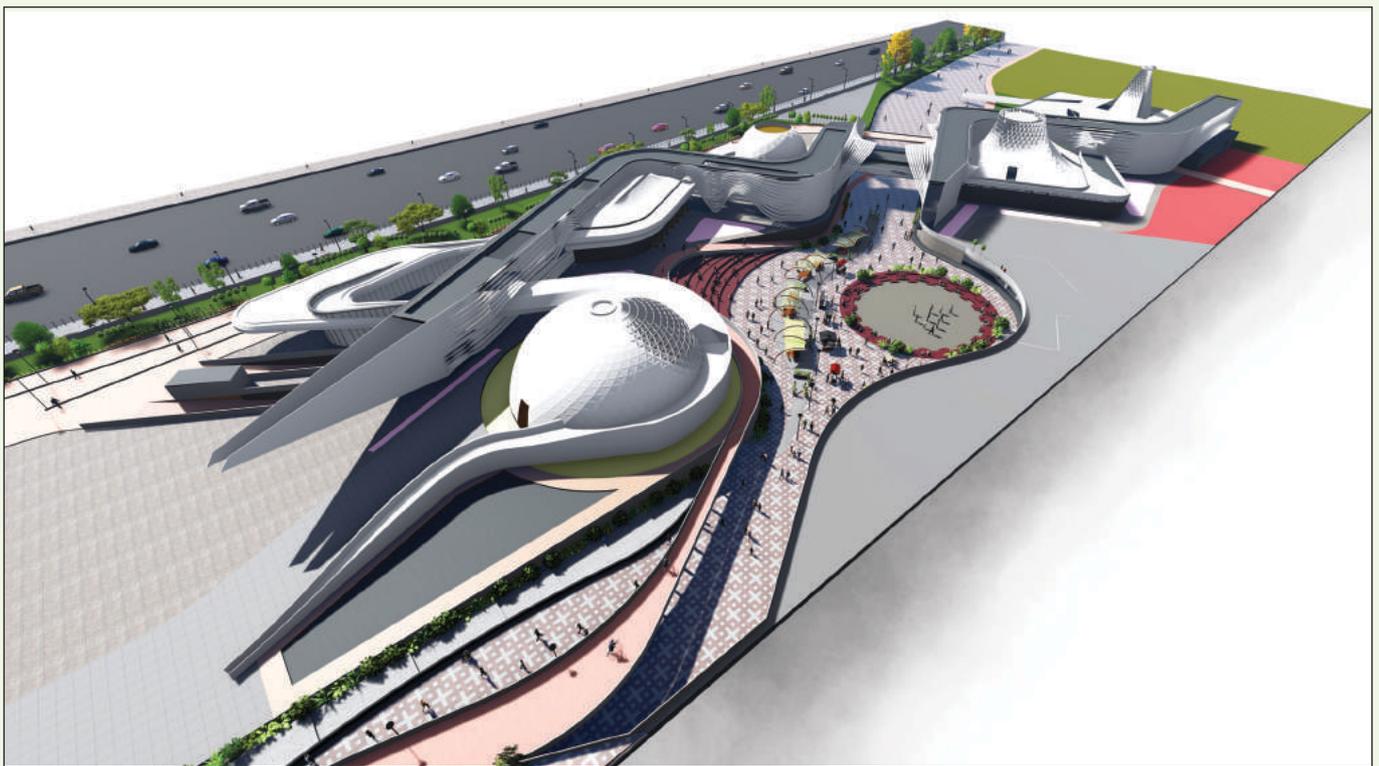
The journey ends at the point where the building frames a view towards the new Diamond Bourse coming up so that people relate back to their city.



View



View



Isometric View

REGRET & APOLOGY

A paper under the title “**Modular Analysis of Energy Efficiency & Climate Responsive Character**” authored by **Ar. Vijaya B. Sambrekar & Dr. Suresh V. Ranade** was published in the September issue of JIIA. This article contains a map of India captioned “**The climate map of India**” picked up some unauthorized source showing the boundaries of our country incorrectly.

The “**Learned authors**” of this article who hold high positions in academics have been personally reprimanded for blindly picking up the incorrect map of India from unauthorized sources which has led to this unfortunate & regrettable lapse. The matter will be placed for further necessary & appropriate action in the next council meeting of IIA.

I do hereby sincerely regret & apologies for this inadvertent oversight on my part in publication of this incorrect map of India in the September 2019 issue of JIIA.

Ar. Divya Kush
President, IIA



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Rachana 2020 – An Exposition of Building & Interior Designing Materials, Home & Office Automation System, Building Services and Construction Equipment, organised by **The Indian Institute of Architects, Nagpur Centre (Maharashtra Chapter)** from **10th to 13th January 2020** at **Nagpur**.

The Nagpur Centre of The Indian Institute of Architects is the second oldest centre of our institute, inaugurated on 26th August 1973. Since its inception the Centre conducts various activities for creating awareness about the built environment. The Centre has been acknowledged as the Best Centre at the national level, winning 9 Best Centre Awards and 5 Runners up awards and has the proud privilege of winning the IIA BEST CENTRE AWARD for four consecutive years from 2007 to 2010.

The Nagpur Centre has been organizing **Rachana** – *Exposition of Building & Interior Designing Materials, Home & Office Automation System, Building Services and Construction Equipment*, since February 1988 and the invigorating experience of the culmination of previous cycle of **Rachana** has energized us further to step into the 23rd cycle of **Rachana** with more focus.

Rachana – an exposition, best known for its excellence presents a unique forum for manufacturers, processors, exporters, dealers, suppliers, vis-a-vis for designers, builders, developers and even to buyers and end users; to catch up on the most up-to-date knowledge on various goods and products, services, systems, automation, and very latest innovative designs and technologies etc. Rachana (which is a registered trademark under the copyright act) is where the construction and allied sectors converge.

Rachana is getting a good response from the participants. Architects, Interior Designers, Engineers, Builders, Developers, Contractors, Students and people from related fields, general public as end users and invitees from various fields from whole of Vidarbha, Madhya Pradesh and Chhattisgarh will visit this exhibition. It will be visited not only by the Architects but also about 4000-4500 visitors per day.

1st, 2nd, 3rd and two consolation prizes are awarded to the best designed, arranged, presented and managed stalls and Certificate of Participation will be awarded to each and every participant / exhibitor.

The exposition will be inaugurated by an eminent personality from the construction industry, on 10th January 2020 at 10.00 a.m. and will remain open to all days from 10th January to 13th January 2020 from 11.00 AM to 9.00 PM. Business hours for Architects and allied professionals from 11.00 AM to 1.00 AM and to all visitors up to 9.00 PM.

There shall be separate pavilion for corporate, which includes Platinum, Gold and Silver sponsors. The pavilion shall be exclusively for corporate display and lounges to interact with professionals. Free visitor's admission, plenty of space for movement for about 4500 visitors a day, free and adequate parking are our strengths. Planned and designed as a perfect show window of advanced technology, Rachana 2020 offers a vocabulary of design, which is modern, stylish, exclusive and upmarket. Be a part of 4-days of action packed Rachana 2020 to interact, learn, network, explore, source, exchange opinions, views and ideas and to promote business.

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Chairman, IIA Nagpur Centre

Ar. Sujit Rodge
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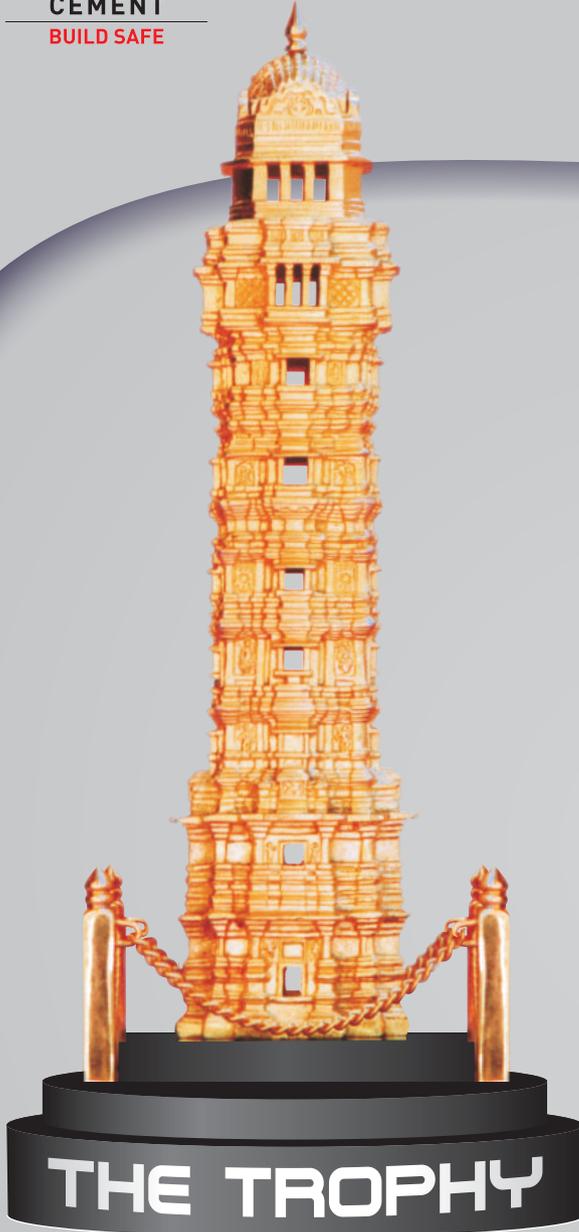
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