1ST INTERNATIONAL DESIGN RESEARCH CONFERENCE 2020

ARCHITECTURE THROUGH REPURPOSE

COMPENDIUM OF SELECTED 'ABSTRACT' OF RESEARCH

ADITYA
COLLEGE OF ARCHITECTURE
ACA
ISO 9001-2015 CERTIFIED

VISION, MISSION & QUALITY POLICY

VISION

- *To be globally recognized as an epitome of learning and innovation.*
- *Imparting multifaceted architectural education driven by social sensitivity and supported by state of the art of infrastructure.*

MISSION

- *To impart quality education that encourages students to be competent enough for best fit job roles.*
- *To provide faculty members with facilities to research, experiment and implement contemporary learning tools.*

QUALITY POLICY

" We, the Management, Faculty and Sstaff of Aditya College of Architecture are committed to offer excellence in architectural education, by pledging to our core value of Agility, Innovation, Integrity I our academic environment and state of the art facilities and infrastructure to our students, thereby ensuring mutual respect and trust for them.

We will work as a team and interact with the students in pro-active manner to achieve our institutional quality objectives and fulfill all academic , statutory and refulatory requirements to continually enhance the satisfaction of our students. "

ABOUT ACA

Aditya College of Architecture established in 2013 is affiliated to Mumbai University, India. Since its inception, the college has continuously been working towards a vision to take architectural education ahead of traditional curriculum and achieve higher goals in grooming better professionals every year. The primary objective of the school is to create 'global practices with local concerns' to achieve excellence in architectural design, practice and profession.

The campus has infrastructure comparable to the best in the world. An ideal environment for exploring new ideas that encourage creative and independent thinking of young minds. It also provides platform for promoting innovation and research for students and faculty. The pedagogy of the school is building professional capacity and cherished individual interest of the student.

With the vision that educating professional requires close coordination of industry and academic the institute encourages collaboration with eminent academicians and industry professions in the way of conducting workshops, seminars, and webinars in the present pandemic situation. The Institute has collaborated with Sri Lanka Institute of Architects by the way of exchange program and combine studios.

ABOUT IDRC

This year Aditya College of Architecture (ACA) brings its 1st International Design Research Conference (IDRC) with the theme, 'ARCHITECTURE THROUGH REPURPOSE', an attempt to investigate design outcomes through discarded and recycled materials. The present, everchanging lifestyle of today has driven our natural resources to the verge of depletion. It is reported that the global annual construction waste alone will nearly double to 2.2. billion tons by the year 2025. The exigent need to implement "reduce, reuse and recycle" policies is restrained by insufficient resources, lack of standardization and slim profit margins. IDRC endeavors to promote sustainable built environment by exploring 'repurposed' building materials that are economical, leave a positive footprint on the Ecology and provide waste management strategies.

The inaugural IDRC conference intends to cover an array of topics that enables Students, Academicians and Practitioners to voice their notions, hypotheses and ideologies evolved and devised through research and practice. It will entail eminent speakers who will showcase their work and share their knowledge on the subject

ABOUT IDRC

THEME:

ARCHITECTURE THOUGH REPURPOSE – A Purposeful Approach Towards Built Environments.

SUB-THEMES

- ***Innovative Material and Alternative Techniques for Built Environment***
- ***Upgradation of Built Environment through cost effective material, methods and techniques***
- ***Project management strategies considering Recycle and repurpose on onsite debris with innovative building material approach***
- ***Energy efficient design process, techniques and methodology through recycling of waste during built form or built environment renewal projects***
- ***Urban planning strategies and Urban design policies on Repurposing Built form or Environment***
- ***Management of Resources – Embodied Energy cycle – Carbon footprints of Built form or Environment through Repurpose***
- ***Proposal of Modules or prototypes or Typology of Sustainable Built form or Environment through Repurpose.***

1st INTERNATIONAL DESIGN RESEARCH CONFERENCE

'Architecture Through Repurpose'
Mumbai – December 11th & 12th 2020.

SCHEDULE – DAY 1 – 11th DECEMBER 2020.		
Session Timings	**Session Details**	
Inaugural session	0845 – 0910 hrs	
Welcome Address by Principal	0910 – 0920 hrs	**Ar. Rita Nayak**
Address by Guest of Honor	0920 – 0930 hrs	**Shri Prof. Dr. Suhas Pednekar (MU)**
Address by Chief Guest	0930 – 0940 hrs	**Ar. Khan Habeeb Ahmed (COA)**
Inauguration of IDRC and Compendium of selected abstract publication	0940 - 0950 hrs	**Ar. Khan Habeeb Ahmed (COA)**
Inauguration of ACA's student's exhibition (19° North) and student magazine (F.Y.I.)	0950 – 1005 hrs	**Shri Suhas Pednekar (MU)**
Address by Key Collaborators	1005 – 1045 hrs	**IGBC-Mr. V. Suresh** **IIA – Vilas Avachat** **PEATA – Ar. Samir Hingoo** **IUDI – Ar. Anuraag Chowfla** **COA-TRC – Prof. Jayashree Deshpande** **SIA (Sri Lanka Institute of Architects)- Ar. Veranjan Kurukulasuriya** **Carbon Craft- Ar. Tejas Sidnal**
TEA BREAK: 1045 -1100		
Keynote Speaker	1100 – 1145 hrs	**Ar. Ashok Lall**
Q & A and concluding remarks		
"REPURPOSE" Panel discussion	1145 – 1330 hrs	**Ar. Roshni Udyavar .** **Ms. Seema Redkar.** **Ms. Mala Singh.** **Ar. Jitendra Mehta.** **Dr. Mansee Bal Bhargava.** **Shri Ramesh Dengle** **Moderator – Dr. Ar. Pratheek Sudhakaran.**
LUNCH BREAK: 1330 - 1430		
EXPERT SPEAK	1430 – 1515 hrs	**Ar. Chitra Vishwanath**
Q & A and concluding remarks		
Research paper presentations	1515 – 1645 hrs	**Mr. Sibin Sabu** **Mr. Chamal Fernando** **Ms. Shashikala Galapaththi** **Ms. K. P. N. K. Wijethunga** **Ms. Hadiya Jafar Ali** **Mr. Divya Solanki** **Ms. Archana** **Ms. Tahjiba Tarannum**
VOTE OF THANKS AND END OF THE DAY		

ADITYA COLLEGE OF ARCHITECTURE
ACA ISO 9001-2015 CERTIFIED

ONLINE CONFERENCE DATES
11th and 12th December 2020.

VENUE
Aditya College of Architecture,
Aditya Educational Campus,
RM Bhattad Rd, Ram Nagar,
Borivali West, Mumbai,
Maharashtra 400092.

REGISTRATION
20th November 2020

CALL FOR PAPERS:
Abstract Submission
7th October 2020.

Full Paper submission
22nd November 2020.

FURTHER DETAILS
Registration link
http://adityacampus.org/idrc/
Email
Idrc2020.aditya@aditya-arch.edu.in
Call
+91 22 6110 6111; +91-9833-300-496

CONFERENCE COORDINATOR
Ar. Rasika Chodankar
Associate Professor
rasika.c@aditya-arch.edu.in

Ar. Trupti Biswas
Associate Professor
trupti.b@aditya-arch.edu.in

IN ASSOCIATION WITH

Council of Architecture INDIA
FOUNDED IN 1965 PRACTISING ENGINEERS ARCHITECTS AND TOWN PLANNERS ASSOCIATION
IGBC
Sri Lanka Institute of Architects
INSTITUTE OF URBAN DESIGNERS INDIA
Council of Architecture Training & Research Centre TRC

INDUSTRY PARTNERS

CARBONCRAFT Design
RUR GREENLIFE reducing reusing recycling

1st INTERNATIONAL DESIGN RESEARCH CONFERENCE

'Architecture Through Repurpose'
Mumbai – December 11th & 12th 2020.

SCHEDULE – DAY 2 – 12th DECEMBER 2020.		
Session Timings	**Session Details**	
Welcome session	0900 – 0915 hrs	
Research paper presentations	0915 – 1045 hrs	**Ms. Neha Tambe** **Mr. Shuvra Das** **Ms. Rahanat Ara Jafar** **Ms. Antima Kuda** **Mr. Gourpada Dey** **Mr. Mahesh Bangad** **Mr. Chris Thurlbourne**
TEA BREAK: 1045 - 1100		
EXPERT SPEAK	1100 – 1145 hrs	**Ar. Chinthaka Wickramage**
Q & A and concluding remarks		
EXPERT SPEAK	1145 – 1230 hrs	**Ar. Dean D'Cruz**
Q & A and concluding remarks		
Address by Key Collaborator	1230 – 1330 hrs	**RUR GREEN LIFE-** **Ms. Monisha Narke**
LUNCH BREAK: 1330 - 1430		
EXPERT SPEAK	1430 – 1515 hrs	**Sir Philippe Samyn**
Q & A and concluding remarks		
About IDC	1515 – 1545 hrs	
Announcement of IDC winners	1545 – 1615 hrs	**Ar. Khan Habeeb Ahmed**
Valedictory	1615 – 1630 hrs	
VOTE OF THANKS AND END OF THE CONFERENCE		

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Associate Professor
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RUR GREENLIFE

Message From Founder Trustee

Shri Harishchandra Mishra
Founder Trustee & Chairman

A Leader is one who shows great perseverance, integrity, determination. They are the ones with the ability to guide and encourage others to achieve their goal. However, it is the traits of mental strength, high moral character, authority, and ability to find new solutions that forces others to look up to them.

Aditya College of Architecture (ACA) is fortunate to have such a leader. Our chairman, Shri Harishchandra Mishra, a leader who is proactive and driven by his passion for education. One that effectively takes his team along with him to scale the heights of success

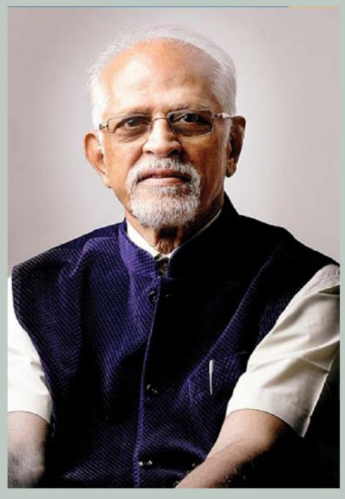
It gives me immense pleasure to see the Aditya College of Architecture flourish with its abundant academic knowledge, immense industry exposure, and their innovative strategies in the field of education and research.

I congratulate Aditya College of Architecture for organizing the 1st International Design and Research Conference 2020 (IDRC) on the theme ''Architecture through Re-purpose.'' IDRC aims to create awareness about the need to reuse and recycle waste material. This would decrease the burden on the environment and contribute towards ecological sustainability.

We hope that IDRC will educate and nourish everyone with valuable message and insight. I wish all the prosperity and fortune to the institution and to the students who will take the baton ahead, to illuminate the world with their spark.

On behalf of Aditya College of Architecture, I wish International Design & Research Conference 2020 a grand success. May our team succeed in truly transferring knowledge without any limitations.

Message From Mentor



Ar. Gurunath Dalvi
Mentor & Advisor

As a Mentor of Aditya Collage of Architecture for last 8 years, I take great pride to keep on record that the college, after successfully organizing International Design Competition consecutively for last 6 years, is majestically organizing 1st International Design & Research Conference on 11th-12th December2020.

The management, faculty and students deserve all praises and compliments for spending their enormous time and putting their efforts for the success of conference, in-spite of calamity of pandemic.

ACA is known for its vision and has been nurturing its students making them think out of the box. Various themes for last all IDCs proves the truth. The theme chosen for the 1st IDRC... "Architecture through Repurpose" is the record very apt for current global situation.

Understanding the need of the time, ACA came forward and shouldered the responsibility to bring all concerned together to deliberate on the burning issues mentioned under sub theme.

I hope that conference will prove to be useful and come with solutions to solve the problem of depletion of resources which can be put before the various authorities in State and Central government.

I wish the Conference a grand success.

Message From Principal

Ar. Rita Nayak
Principal

"I only feel angry when I see waste. When I see people throwing away things we could use."

—Mother Teresa

On a planet that has been ravaged by consumerism of the last few decades, there has been millions of tons of material generated that we call 'waste'. To me this waste is just another form of matter that we have not yet understood what to do with.

This brings us to our theme of 1st International Design and Research Conference on the Architecture of "Repurpose" which aims to promote the re-use of waste material by recycling and re-moulding. The intend of any development should be to meet the demand of the present, without compromising the needs of future - making it imperative to create buildings that are zero discharge and manifest carbon negativity to achieve ecological balance.

This year the IDRC 2020 platform reached out to students, Academicians and professionals who are sensitive towards the environment and have researched around recycling and re-using the waste material. Whether it is plastic waste to create bricks or paving material or cement design mix with demolition debris as aggregate, or even broken pieces of glass to create a new wall cladding, almost 90% of the waste material generated can be reused in innovative ways. The abstracts presented in the compendium, touches upon the various issues that plague the industry and showcase technologies and design strategies that can be employed to reduce the burden on our limited natural resources.

On behave of ACA I take immense pleasure in welcoming all to the annual IDRC event and hope it will spread awareness to the cause of "Architecture through Repurpose "

Professor Dr. Suhas Pednekar is currently the Vice Chancellor of University of Mumbai and was the Principal of Ramnarain Ruia College, one of the leading colleges in India. He has completed his Post-Doctoral studies in Green Chemistry at the Stevens Institute of Technology, USA. Prof. Pednekar's areas of research interest include Pharmacological and Chemical Investigation of Medicinal Plants and Marine Biotechnology. He has presented his research findings in many international and national conferences in more than 20 countries and has published over 50 research papers in international and national journals of repute. He has undertaken collaborative research projects with many Universities in India and abroad and has successfully guided over 20 students for Doctoral programs.He has more than 28 years of experience in the field of higher education as a Teacher, Research Guide, Administrator, Resource Person, Principal Investigator in various Govt. and other Research Projects.For his remarkable contribution in the field of higher education, Professor Pednekar has been conferred with the award of Best Teacher by the Government of Maharashtra in 2012 and very recently he has also been honored with the prestigious national level Best Chemistry Teacher Award by Tata Chemicals Ltd. in Association with the Association of Chemistry Teachers, Royal Society of Chemistry, the Confederation of Indian Industry and Godrej.Professor Pednekar has been an active member of various professional bodies.

Dr. Suhas Pednekar
Vice Chancellor of
University of
Mumbai

Guest of Honour

AR. HABIB KHANArchitect Habeeb Khan, graduated in architecture from VNIT (formerly VRCE) and then completed his masters from University of Illinois, Urbana-Champaign. In his long span of working; he has worked on major institutional & hospitality projects and exclusive residential bungalows for which he has won many awards. To mention a few; he and his firm has been awarded the JIIA best interior Design award by the Indian Institute of Architects in 1998 and IIA-KAFF young architects award in 2000. Architecture to him is a passion, total commitment, and something to enjoy and indulge in. He is fiercely committed to architecture being contextual and relevant. His partner Ar. Smita and about 10 dedicated associates who also believe in the same philosophy as his and hence his practice is more exclusive, niched, and very design-oriented. His former firm D3+1 is now called Smita & Habeeb Khan Associates.Our COA president is also involved in teaching since the beginning of his career. He has been taking guest lectures and engaging design studios in architectural colleges all over, apart from juries and examinations. He is currently the Design Chair at Priyadarshini Institute of Architecture and Design Studies at Nagpur. His Design teaching revolves around sensitizing students towards their own heritage and roots, context and climate within the framework of being contemporary.

AR. KHAN HABEEB AHMED

President, Council of Architecture

Chief Guest

Message From IDRC Coordinators

We here at ACA are proud of launching the 1st International Design and Research Conference 2020, a vision of our trustee's since the continued success of our International Design Competition. It is indeed an honor to be a part of this venture and lead an enthusiastic team of colleagues. For this maiden Conference, we strived to select a very relevant and meaningful theme – Architecture through Repurpose.

This Conference truly has an international reach; Eminent Architects, from India and abroad were invited after meticulous research. We are very proud of our association with such Industry stalwarts, whose work largely addresses our theme through their design.

Since its initial launch, IDRC has garnished tremendous response from the architectural community with over 130 abstract submissions for the Research Paper. We are thankful to all the participants and to the esteemed Review committee for their commitment. The varied topics chosen by the researchers based on the sub-themes of the conference showcase the urgency and sensitivity felt by the fraternity with regard to this issue. It strengthens our resolve to nurture this in ourselves and as mentors, in the next generation.

Ar. Rasika Chodankar
Associate Professor

It has been a pleasure to curate the 1st International Design and Research Conference 2020 on the theme of REPURPOSE THROUGH ARCHITECTURE wherein various enquiries from micro to macro level were generated through 130 plus abstracts received on subthemes of the Conference which gave us all an opportunity to look at the building materials, technology as well as waste management ; giving a very different lens of thought with REPURPOSE as tool to Sustainable and Energy Efficient Approaches under Architecture, City planning as well as Resource management.

The idea of Research Conference was conceptualized to have a meaningful Exchange of thoughts, which may be a primitive idea but having a capacity to trigger a sequence which ignites the research attitude in us. This Conference working has been an immense journey of learning for me, for the opportunity it gave me to reach out to faculty and researchers internationally as well as the collaborations that it prompted with Government and Private agencies who are actively involved in the planning and implementation process and somewhere there has given me a hope of inserting this seed of research at the start point of these planning processes.

Ar. Trupti Biswas
Associate Professor

Message From Publication Head

Ar. Aparna Parate
Associate Professor

Creation and demolition are two facades of Architecture. Every building has limited life span, which may vary depending upon its constructure type. In vernacular architecture, construction material being eco-friendly, either it was reused or got degraded naturally without any environmental concern. However, with the use of modern construction material, need was felt to reuse the construction waste as it is posing huge challenge for its eco-friendly disposal. True sustainability can only be achieved during creation stage which not only uses construction waste but also defines its reuse and adaptation after its demolition.

The theme for the conference 'Repurpose through Architecture' is to investigate innovative design strategies without overlooking the local concerns that will promote environmental sustainability with hindering creativity.

Message From IDC Coordinator

Ar. Swati Ray
Associate Professor

Climate change is destroying our path to sustainability. Ours is a world of looming challenges and increasingly limited resources. Sustainable development offers the best chance to adjust our course

- Ban ki moon, 8th Secretary-General of the United Nations

The International Design Competition (IDC) annually hosted by ACA is in its 7th successive year. The aim of the competition is to develop a sensitivity towards prevailing social and environmental exigencies, from the onset of their architectural careers. We at ACA believe that without this key trait neither can the world be ecologically restored nor can it fulfil its ecological needs.

The IDC is a platform that reaches out to students across globe, inciting them to express through design their thoughts and notions taking nascent steps towards a better world.

The theme of IDC 2020 was the 'Architecture through Repurpose'. It was aimed at encouraging students to conceive design concepts and technological strategies that employ waste material, otherwise dumped in landfills. For the pillage of the past decade to regress projects must aim not towards zero discharge but towards carbon negativity to attain an environmental balance.

By 'Architecture through re-purpose' we can, not only conserve our natural resources, reduce pollution but also achieve greater economic viability.

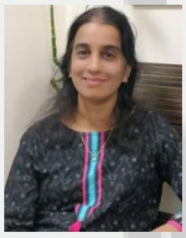
IDRC TEAM

Ar. Rita Nayak
Principal

Ar. Rasika Chodankar
IDRC Coordinator

Ar. Trupti Biswas
IDRC Coordinator

Ar. Aparna Parate
Publication Head



Ar. Varsha Swar

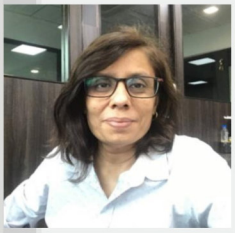
Ar. Manali Rane

Ar. Ajay GeeVarghese

Ar. Akanksha Katare

Ar. Pranita Daware

IDC TEAM



Ar. Swati Ray
IDRC Coordinator

Ar. Urvashi Purohit

Ar. Ajay GeeVarghese

About Our Speakers

Ar. Sir Philippe Samyn

Architect & Consulting Engineer
SAMYN AND PARTNERS, Belgium

Philippe Samyn's architectural & engineering design approach is based on questioning, which can be summarized as a "why" methodology inspired by the client aspirations and the genius loci.

Philippe SAMYN and PARTNERS, founded in 1980, is a private owned by its partners and led by its Design Partner Dr Ir Philippe SAMYN. With its affiliated companies FTI , DAE and AirSR, it is active in all fields of architecture and building engineering.

*The firm's client services include Planning & Programming, Urban Planning, Landscaping & Architectural Design, Interior Design, Building Physics, MEP * Structural Engineering, Project & Construction Management, Cost & Planning Control, Quality Surveying, Safety & Health Coordination.*

The firm is an administrator of SECO scrl, Technical Control Bureau for Construction, as well as PLAIN-PIED asbl, a consulting office in the field of accessibility for the disabled.

Its projects are often published in the international specialized press and filmed (1366 publications and 185 footages as of 2019-03-13).

Ar. Chinthaka Wickramage

Principal Architect
Chinthaka Wwickramage Associates, Sri Lanka

Chinthaka Wickramage after obtaining his Bachelor of Built environment from the Faculty of Architecture University of Moratuwa worked as an apprentice under Sri Lanka Ar. Anura Ratnavibhushana.

He completed his post graduate studies at the Barlett School of Architecture & Graduate Studies, obtaining his masters from the University College London, United Kingdom.

He has won several international & local architecture awards including ARCASIA Gold Medal for Socially Responsible Architecture @ ARCASIA Awards 2013 for IFRCS Community Centre for Tsunami affected community of Thalalla and Geofrey Bawa Awards: Institutional Category Award for Kaithady Vocational School, Jaffna in 2017.

His work is published locally and internally in Architectural Review Magazine United Kingdom & Architecture Asia magazine Malaysia.

After returning to Sri Lanka & working at a leading architectural firm Design Group Five, he set up his own practice, Chinthaka Wickramage Associates in 2007.

About Our Speakers

Ar. Dean D' Cruz is a partner and principal architect in MOZAIC DESIGN COMBINE, a leading design firm based in Ggoa, involved in urban intervention, architecture, conservation, product & graphic design.

His works and articles have been published in leading magazines in India and abroad. Supported the Royal Art and Architecture Academy Stockholm, Oxford Brookes University UK, and PRAT University New York for his architectural and planning programs in Goa.

He is a member of the State Level Committee to prepare the Regional Plan for Goa 2021; Twice President of the Communidade of Saligao, working on developmental issues in the village; Ex-Chairman of Indian Institute of Architect (IIA) Goa Chapter; Director with Goa Foundation and Green Goa Works, organizations involved in environmental protection and environmental cleaning.

He has won several awards like designer of one of the 100 best small hotels in the world (1998), Architect of the Year – State Commendation Award (2003), Designer of one of the 10 best spas in Asia (2004) & many more.

Ar. Dean D'Cruz
Principal Architect,
MOZAIC Goa, India

Chitra Vishwanath was born in Banaras, India. She graduated from School of Architecture CEPT, Ahmedabad. She studied civil engineering diploma in Nigeria at Auchi Polytechnic from 1977 - 1980.After graduation in 1989 she moved to Bangalore & started her firm Chitra Vishwanath Architects in 1991. In 2008, the firm changed its name to Biome Environmental Solutions since it was felt that the practice is a collaborative one and addressing ecological issues through design was its focus.

Her passion is to work with ecosystem design and create simple agile solutions which can be handled by community participation & of low-level technology.

Biome has spearheaded the campaign for rainwater harvesting and ecological sanitation practices throughout India. It has worked at both grassroot level implementation of toilets at flood plains of Bihar as well as has been part of policy level implementation both at centre and state levels. The firm has won many awards notable being IIA awards, 2AA awards and Rethinking the future awards.

For Ar. Chitra, architecture is moving beyond creating physical spaces but creating ecosystems.

Ar. Chitra Vishwanath
Principal Architect &
Managing Director,
Biome Environmental
Solutions Private Limited,
Bangalore, India

About Our Speakers

Ar. Ashok Lall

Principal Architect,
Ashok B Lall Architects,
New Delhi, India.

Ar. Ashok Lall graduated from the University of Ccambridge U.K. in Architecture Fine Arts and obtained the Architectural Association Diploma in 1970.

His architectural firm (estd. 1981) is committed to an architectural practice based on the principles of environmental sustainability and social responsibility. It whas won a number of awards & its work has been published widely.

His practice has executed projects for educational research institutions in India specializes in low energy sustainable architecture.

Among India's most respected architects, Ashok B. Lall has been a pioneer in formally integrating sustainability into his architectural works – decades before the term attained significance.

He has also been a devoted academician and served as Dean of Studies at the TVB School of Habitat Studies.

Among several notable accolades, Mr. Lall has been nominated for the prestigious Aga Khan Award for Architecture twice, served on the international Holcim Foundation Jury thrice heading a thriving practice from his eponymous studio in Civil Lines, New Delhi since 1981.

About Our Panelist

Ms. Seema Redkar: Initiative of people participation from slum and non-slum section of society led neighborhood groups to move much ahead from waste management to civic, social and environmental issues of not just the neighborhood but city wide. Seema Redkar was branded as dynamic woman officer of India's premier Municipal body; she could redefine the rather uncharitable stereotype role of a typical Government servant. Her illustrious career of 32 years in the Municipal Corporation, her repertoire has expended to school projects, slum improvement programmes, slum sanitation projects funded by the World Bank, urban poverty alleviation and Solid waste management.

The out of the box initiative of 'individual toilets' in slums was first tried in Mumbai slums, which was a great success between 2000 and 2005 which accepted as model by under "Swachh Bharat Mission". URBAN AGE Award instituted by Deutsche Bank in 2008 was given to a project community toilet anchored by her. Her contribution towards strengthening and sustaining the community mobilization / ALM concepts in the Mumbai city are big social asset.

Ms. Seema Redkar
Retired Officer on Dy. Special Duty (OSD) Solid Waste Management Department, BMC

Ar. Ramesh Dengle is a Chief Architect & Planner in City & Industrial Development Corporation of Maharashtra (CIDCO).

He has done his Master of Architecture in Urban Design, School of Planning and Architecture, New Delhi (1988) & Bachelor of Architecture, BKPS College of Architecture, Pune; University of Pune (1986). After post-graduation, worked with Rajiv Gandhi Memorial Architect, Shri. KT Ravindran Rajeev for one year on project of conservation at Mathura, Vrindavan.

He has worked on varied range of projects – Designing Industrial Park at Kalamboli, Sindhudurg District Capital Township & District Headquarters, etc., He was Head of Planning Section of Navi Mumbai.

He awarded with Best in Creativity Award & The Extra Mile Award in 2016.

He Felicitated by hon'ble Chief Minister, Maharashtra, for 'Chikhaldara Development Plan' – 2016 & received First Best Officer Award of CIDCO – 2010.

RAMESH N. DENGLE
CHIEF ARCHITECT & PLANNER,
City & Industrial Development Corporation of Maharashtra (CIDCO)

About Our Panelist

Ar. Mehta is an eminent Architect & Urbanist of Central India with more than 25 years of experience in Architecture and Urban Planning. With a proactive response to sustainable architecture, he is promoting Green Architecture & its practical adoption in Architecture & Urban Planning.

He has made great strides in International relations by being Official Representative of ARCASIA Committee on Young Architects (ACYA)(2012-2014).

He is present chairman of IGBC Indore Centre. Also, chaired IIA Sports & Cultural Committee which brought together fraternity members through various National and International events. Visiting Lecturer at California Polytechnic State University, San Luis Obispo, which is ranked #2 in the United States for its undergraduate in Architecture program.

Ar. Mehta has been involved in architecture, design and planning of many award winning and internationally acclaimed projects. Served as the Chairman of Indian Institute of Architects (IIA) – Madhya Pradesh Chapter (2011-2015)..

Ar. Jitendra Mehta
Principal Architect,
Mehta & Associates,
Indore, India

Dr. Roshni Udyavar Yehuda: Dr. Roshni Udyavar Yehuda is an Architect, Academician and Environment Consultant whose core competency lies in energy and environmental design of buildings – Building Energy Simulation; Green Building Certification; Building Physics and Solar Passive Architecture. She is Director, Roshni Udyavar and Associates; President, Institute of Environmental Architecture and Research (IEAR), Mumbai; served as Head – Operations, for the project on 'Promoting Clean and Energy Efficient Cold-Chain in India' for MP Ensystems Advisory Pvt. Ltd. in collaboration with Shakti Sustainable Energy Foundation, New Delhi and University of Birmingham, UK (March 2019), Vice President, Sustainability, ICMQ Certification India Pvt. Ltd. (till July2018).

As a writer and a professional, she has numerous articles and writings to her credit in various journals and books. At the 34th international conference on Passive and Low Energy Architecture – PLEA 2018, December 2018, Hong Kong, she received the 'Best Paper Award' for the paper co-authored with Dr. Archana Bhatnagar entitled 'Assessment of ThermODrain System on Thermal Comfort – study of a office building in Nashik, India'. She co-authored the book, 'Survival at Stake: An Anthology of Essays by Rashmi Mayur' in 2012.

Dr. Roshini Udyawar
Director, Roshini Udyawar & Associates;
President, Institute of Environmental Architecture & Research (IEAR)

About Our Panelist

Dr. Mansee Bal Bhargava

PhD; Entrepreneur, Researcher; Educator

As a trans-disciplinary learner, she is interested in the sustainability and liveability aspects of the built environment that include architecture–design-development-planning–management-governance. Her twenty five years of independent practice of entrepreneurship, research and education is focused on large scale residential, recreational, institutional & industrial developments with inclination towards ecological restoration. She is deeply concerned about the rising water distress and the related issues including asymmetric access to opportunities.

She is developing understanding of water resources as complex social-ecological systems with focus on urban lakes through research and writings. As a keen political observer & gender sensitive person, she believes in maximum governance where government is a servant to facilitate & the community & the business are the masters to spearhead the problems and the solutions of the society & growth and this is possible when the role of women in managing the shared resources as well as the society is more clearly and cleverly applied.

Ar. Mala Singh

Chairperson & MD-PEC Greening India (Green Building & Sustainability Specialist) IGBC; Fellow, IGBC AP & LEEDGA, Mumbai, India

Ar. Mala Singh is a well-known Green building & sustainability specialist (an alumni of Roorkee IIT) for Corporates, Builders & Construction companies, Hospitality & Healthcare Sector, Educational Institutes, Industrial & Govt. Sector. She is playing a vital role to inspire Green education among all kind of stakeholders of the society and her contribution is well established to promote sustainability across the country.

She represents various prestigious associations & govt. organizations as on-board sustainability expert & advisor. She is a Green Building Committee member for Environment and Forests Dept. of Govt. of Gujarat and appointed as member of environmental Cell at " City & Industrial Development Corporation (CIDCO) " AND " Thane Municipal Corporation(TMC)".

She is also a green building expert & strategist for Smart City initiative. She was recognized as one of the top 50 green leaders globally In the World CSR Congress 2017. She has been bestowed with the title of IGBC Fellow for her outstanding contribution to the Green Building movement in India during the International Green Congress of Indian Green Building Council, held in Mumbai in 2016.

About Our Reviewers

Dr. Ujwala Shirish Chakradeo: Professor and Principal of Smt. Manoramabai Mundle College of Architecture, Nagpur. Lecturer in Department of House & Interior Design of L. A. D. College for Women, Nagpur from Nov. 1985 to Dec. 1996 – 11 years. Associate Professor at Smt. Manoramabai Mundle Department of Architecture, . L. A. D. College for Women, Nagpur from 1997-2003. Approved Professor of RTM Nagpur University, Nagpur at Smt. Manoramabai Mundle Department of Architecture, L. A. D. College for Women, Nagpur from 2003.

PROFESSIONAL EXPERIENCE: Interior Design of Govt. and Private Sector Offices. Interior Design of Residences, Shops etc. Residential and Institutions buildings. Landscaping work of Japanese Garden through Design Cell of the College Design of School Building for Women's Education Society through Design Cell of The College. Various Projects under Design Cell of the College. For RTM Nagpur University and Govt. Departments.

Dr. Ujwala Shirish Chakradeo
Professor and Principal of Smt. Manoramabai Mundle College of Architecture, Nagpur

Dr. Roshni Udyavar Yehuda: Dr. Roshni Udyavar Yehuda is an Architect, Academician and Environment Consultant whose core competency lies in energy and environmental design of buildings – Building Energy Simulation; Green Building Certification; Building Physics and Solar Passive Architecture. She is Director, Roshni Udyavar and Associates; President, Institute of Environmental Architecture and Research (IEAR), Mumbai; served as Head – Operations, for the project on 'Promoting Clean and Energy Efficient Cold-Chain in India' for MP Ensystems Advisory Pvt. Ltd. in collaboration with Shakti Sustainable Energy Foundation, New Delhi and University of Birmingham, UK (March 2019), Vice President, Sustainability, ICMQ Certification India Pvt. Ltd. (till July2018).

As a writer and a professional, she has numerous articles and writings to her credit in various journals and books. At the 34th international conference on Passive and Low Energy Architecture – PLEA 2018, December 2018, Hong Kong, she received the 'Best Paper Award' for the paper co-authored with Dr. Archana Bhatnagar entitled 'Assessment of ThermODrain System on Thermal Comfort – study of a office building in Nashik, India'. She co-authored the book, 'Survival at Stake: An Anthology of Essays by Rashmi Mayur' in 2012.

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Dr. Vasudha Ashutosh Gokhale
Professor, Dr. Bhanuben Nanavati College of Architecture, Pune

Dr. Vasudha Ashutosh Gokhale: Professor, Dr. Bhanuben Nanavati College of Architecture, Pune; Ph. D. from Indian Institute of Technology Roorkee, India. 2 0 0 2; M. Arch from University of Roorkee, Roorkee, India. 1991 First Class Hons; B.Arch from Maulana Azad College of Technology, University of Bhopal, India 1989 First Class Hons. She is awarded with University of Pune -Best Teacher Award for contribution in academics 2009-10; "Best Teacher Award for Excellent Contribution in Architectural Education 2008. by Maharashtrra Association of Schools of Architecture and Council of Architecture, India; Best Teacher Award for contribution in academics by Indian Institute of Architects, Pune Chapter 2009; Maharshi Karve Award for Excellence 2010.

She has conducted multiple workshops/lectures for the students of architecture with reference to "Earthquake Resistant Architecture" & "Architectural Research". She is active member of Society of Architectural Historians; Indian Institute of Architects; Council of Architecture, India. CA/93/16256; Indian Institute of Interior Designers. She has also written a book chapter "A tiny whole world: Sustainable Design Lessons from the Architecture of Under Privileged Class",Chapter 7, "Reading the Architecture of Under Privileged Class, Ashgate Publishing Ltd, Burligton US, 2014.

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"IMPACT OF LANDSCAPE ENVIRONMENT ON ELDERS MENTAL HEALTH AND WELLBEING: A STUDY ON ELDER'S HOME LANDSCAPE IN SRI LANKA."

K.P.N.K. Wijethunga, Undergraduate student, University of Moratuwa, Sri Lanka

The increment of the senior population worldwide has caused this group to become a most dominant part of society leading to an increase in the number of elders' homes. current investigation looks into the involvement of a landscape environment in resolving mental health issues and the well-being of seniors who are living in elders' homes. Accordingly, their wellness, cannot be helped only by medicine. Significantly, achieving mental well-being through developing livable places/environments was the focus. The main intentions were stabilized theoretical knowledge on Geriatric Landscape and provide qualitative life to Sri Lankan elders while focused on their mental health and wellbeing. The study tested the senior's perception and attempted to identify the most appropriate landscape environments for them by a comparative analysis between three elders' homes located in Badulla, Sri Lanka as case studies (N= 20 per case study). Semi-structured interviews, questionnaire surveys, and Behaviour analysis methods used to test elders' preferred landscape refers to their mental health. Mental health was assessed and analyzed by adopting the WHO world mental health & well-being scale and The Warwick-Edinburgh Mental Well-being Scale (WEMWBS). Analyzed responses demonstrated that lack of well-designed Landscape places in Sri Lankan elders home causes low mental satisfaction. On this basis, the study investigated that the landscape preference of local seniors regards with characteristics and elements of their domestic landscapes environment which enhances their mental health and wellbeing.

"THERMAL PERFORMANCE OF CONVENTIONAL ROOFING MATERIALS IN TROPICAL CLIMATES."

Mrs. Abinaya Kandasamy, Post Graduate Student; Lilly Rose A, Associate Professor,
School of Planning & Architecture,Vijaywada

The building envelope largely contributes to the thermal comfort of the occupants. The roof as a part of the building envelope significantly affects the thermal performance especially in tropical climatic regions and it also varies with the different materials used. Therefore, the selection of the most appropriate roofing materials will be important to achieve desirable indoor thermal comfort. The aim of the study is to investigate the thermal performance of three conventional roofing materials in the tropical city, Chennai. The three different conventional roofing materials analyzed are: (1) Reinforced Cement Concrete, (2) Asbestos Sheet roofing, and (3) Cuddapah Slab with Cement finish in the single-storey structures. The thermal performance of these materials has been analyzed through the measured data of air temperature, relative humidity simultaneously for a month's time period in three different spaces. The intra-variation of thermal performance within the three spaces were assessed through a comparative study of air temperature & humidity variation and indoor thermal comfort using the India model for adaptive comfort (IMAC) method. The results show that the Cuddapah roofing material performing better compared to the other two roofing materials, Reinforced Cement Concrete and Asbestos sheet roofing respectively. This study used to identify a sustainable/energy-efficient alternative material for roofing in Chennai, aimed at providing optimum indoor thermal comfort. The impact of varying SRI (Solar Reflective Index) coatings can be the future scope of the study.

"KNITTED FABRIC AS A STAY IN PLACE FORMWORK & REINFORCEMENT FOR SHELL STRUCTURES."

Ar. Harshada S. Vazarkar, Professor , S. B . Patil College Of Architecture & Design , Nigdi

In conventional methods of flexible formwork of sheet materials, stretchable, weaved Fabrics are used. They require extensive work, time, and cost are complex to fabricate. Its possible application is for stay in place fabric formwork, with integrated features for the guidance of reinforcement and other building elements as they can be designed and constructed with appropriate selection of stitches, patterns, fiber type, and loop count. How Flexibility, strength, in knitted fabric can vary by manipulating knitting patterns that can be used to create flexible form work to create shell structure? The thesis aims at exploring, studying knitted fabric as stay in place formwork and reinforcement with different knitting patterns which will help to create curvature naturally. The primary objective of the project is to achieve complex geometries with stay in place formwork with knitted fabric which will act as reinforcement also. The process followed through the project was parallel dialogue between analogue experiments done on a household knitting and digital generation of form and curvature analysis.

"REUSE OF WASTE MATERIALS AS DESIGN ELEMENTS IN THE BUILDINGS: A CASE STUDY."

Ar. Tania Bera, Assistant Professor, G. L. Bajaj Group of Institutions, Mathura, U.P.

This paper presents the reuse of waste materials as interior design elements in buildings while depicting the re-purpose of architecture. Repurpose of architecture is the process of deployment of older resources for a new purpose without major demolition. Aim of the study is to present innovative solutions for futuristic approach in architecture while ensuring sustainability through alternative design elements. The study investigates the compatibility of repurposing of waste objects in a newer environment with an alternative use value. Other objectives are to demonstrate the impact of the concept: "reduce, reuse and recycle". The case study of a restaurant is an appropriate example of reuse of waste materials for a completely different purpose. Emphasis on the interior design of this restaurant lies on the possible conversion of the waste material of truck into significant form as furniture. The study shows that the repurpose is successfully possible without compromising the significance of the building typology through the judicious use of the old material into a newer usage. Possible strategies for the successful reuse of waste material as building design element further may be formed based on the suitable reuse of the waste materials as building design elements.

"AN OVERVIEW OF REUSING AND RECYCLING PLASTICS FOR INNOVATIVE APPLICATIONS IN ARCHITECTURE."

Sanghavi Venkata Varadan, Associate Professor; Arulmalar Ramaraj , Assoc. Professor & Catherine Selvaraj, Asst. Professor; Sathyabama Institute of Science and Technology, Chennai.

According to Guy and Farmer, 'reduce, reuse and recycle' is a strategy adopted in 'eco-centric logic', one amongst the six competing logics of sustainable architecture. Innovative ideas to reuse plastics are appropriately developed by 'eco-centric' thinkers and creators in diverse domains. There is a continuous search for novel ideas to reuse as well as recycle polymers in construction field by architects, technocrats, environmentalists, researchers, academicians etc. The objective of this paper is to explore, interpret, consolidate and map the diverse directions adopted to reuse or recycle plastics for different purposes in architecture. Methods/Statistical Analysis: Thematic analysis along with domain analysis to consolidate the diverse 'creative ideas yet rational approaches', evolved and developed in constructing the built form, temporary pavilions etc. Findings: The ideas and concepts are brought in to reality by changing the properties of the materials, simulations and experimentations iteratively, portraying the need to integrate creativity, rationality and technology through a number of trials and investigations. Application/ Improvements: Data sourced from secondary sources is the limitation of this study. It is observed that when plastics are reused in temporary structures for aesthetic purposes, creativity plays a vital role. When dry assembly, modules and portability are core issues, the approaches are multidisciplinary and highly challenging.

"MATERIAL AND ADVANCED TECHNIQUES TRANSFORMING RECOVERED POLYMERS INTO BESPOKE BUILDING COMPONENTS: HARVESTING LOCAL PLASTIC WASTE FOR BUILDING MATERIAL."

Ar. Chris Thurlbourne; Aarhus School of Architecture, Aarhus, Denmark

This paper describes examples of plastic waste used as a material for producing bespoke building components focusing on a high level of architectural design articulation and detail with specific attention to the material's sustainable tectonics. The paper will present how a partnership with Aarhus School of Architecture, Denmark, and Udaipur Municipality - under the Smart City programs, has produced a plenum of knowledge for:
a. Identification of waste plastic types and sources, together with experiments into processing the material for preparation; b. Development of new building component types using plastic waste, and knowledge transfer for local production; c. Establishment of a knowledge 'incubator' and live testing in both India and Denmark to address specific brief requirements; d. How new technology in digital fabrication techniques can be combined to craft specific building parts from recovered plastic waste into architecturally refined building components; e. Demonstration of how sustainable tectonics of waste material can solve complex urban regeneration challenges
The paper will describe how, through project and material development, complex challenges to improving the urban landscape can serve as catalysts for processing and reusing locally discarded plastic wastes and open up new business opportunities and job creation in the construction industry.

"ELECTRO(RE)FORMING AND ADDITIVE APPROACH TO METAL PRODUCTION"

Divya Kumar Solanki, M.Arch. Design for Manufacture, Bartlett School of Architecture, UCL

A 19th century dormant technique of manufacturing, Electroforming, is scrutinized against the demands of the 21st century architectural fabrication. In an attempt to harness its capabilities of additively forming metallic objects. The research aims to aid in the manufacturing of free form complex surfaces and structural members, and their perpetual requirement of mass-customization. Consequently, questioning the monopoly of subtractive manufacturing methods at customization, their high costs, their wastage inefficiencies, and their unsustainability. Literary explorations are undertaken to understand the discovery of the process, its induction into the industry, its additive phenomenon, its manufactured structure and properties, its opportunities and limitations, its base set-up and its diverse applications in the field. The accumulated knowledge is applied to construct prototypes supporting the hypothesis.

The research develops a hybrid method of involving advance designing using Computer Aided Manufacturing, rapid prototyping using 3D printing and manual assembly by hand. A Craftier, hands-on, analogue approach is attempted to involve the maker in the complete manufacturing process. Using this method, flexible and impermanent formwork such as stretched latex membranes and interlaced networks of fibrous threads are turned into delicate and complex metallic entities. All materials utilized are either recycled or reused.

"EXPLORING INNOVATIVE MATERIALS - RECLAIMED, RECYCLED AND REPURPOSED FOR BUILT ENVIRONMENTS."

Ar. Divya Mallavarapu, Assistant Professor; Aaditi Mahajan, Final Year Student; SMEF's Brick School of Architecture, Pune

Climate change is a mountain of a challenge faced by multiple countries. There is a definitive need to adopt creative, sustainable and circular ways starting from the inception of the design to the construction and the maintenance of the structure. Demolished buildings and structures can serve as potential materials for future building purposes. Unfortunately, according to 'The Week' magazine study, India manages to recover and recycle only about one per cent of its construction and demolition (C&D) waste (Dixit, 2020). The rest is strewn in landfills which in turn harms water bodies, affect groundwater-tables, nearby settlements etc. If considered and drawn attention to, a significant amount of construction waste and demolished materials can be reused, recycled and it can contribute to a circular economy. This can have many advantages such as the addition to aesthetics, use of the material in a sustainable and wholesome manner, monetary benefits etc. This paper explores the methods, innovations and emerging trends in reusing and recycling building materials in a sustainable manner in achieving circular design and economy. The study would be based on comparative case studies and how the country is dealing with construction and demolition waste.

"ALTERNATIVE FLAT-ROOF CONSTRUCTION TECHNIQUES IN TRADITIONAL ARCHITECTURE OF SAURASHTRA."

Hiteshkumar Mahendrabhai Changela; Associate Professor; Indubhai Parekh School of Architecture (IPSA), Rajkot

The field of low-cost construction studies has largely remained focused on innovations specific to walling systems. There is significant work remaining due in roofing systems. Same time field researchers have remained ignorant to recognise the learnings from traditional construction practices, in search of appropriate cost-effective solutions. This paper aims to do a comparative assessment of variations in the traditional flat-roof system of Saurashtra region for its resource efficiency, specifically within the slab/plank and joist system.

The study will be presented in two parts. Part one will focus on documented case-studies for variation in techniques. Across time, the system has been evolved with varied materials like bamboo, wood, stone, steel and precast concrete.Part two will present a comparative assessment of variation in technique with parameters like material used, sourcing of materials, construction details, skill set required and architectural articulation. The subject matter will be approached descriptively. The examples will serve to understand variation in construction techniques, in response to the variation in material resources and affordability.

The traditional practices have resource-specific, localized and cost-efficient solutions. This approach has socio-economical and environmental relevance even today. With contemporary interpretation, we may be able to create support for local craft traditions and reduce energy-intensive elements in contemporary buildings.

"ARCHITECTURE THROUGH REPURPOSE – A PURPOSEFUL APPROACH TOWARDS BUILT ENVIRONMENT."

Kushal Kumar Dubey; Assistant Professor; Faculty of Architecture & Planning Lucknow, APJAKTU

The Indian subcontinent which experiences a wide range of climatic zones also has a history of earthquakes. These high intensity and high frequency earthquakes are driving the Indian plate into Asia at the rate of approximately 47mm every year. India has also lost approximately $79.50 Billion to Natural disasters in last 20 years (1998-2007) in which it has recorded 563 earthquakes followed by tsunamis. These natural disasters accounted for 56% of the total fatality cases approximately up to 747,234. Interestingly the loss of lives and economic losses were least experienced in areas where houses, buildings and market places were built using traditional vernacular materials and construction style. These Kuccha houses with semi-permanent roofs made of thatch and straws along with walls made in random rubble stone masonry in mud plaster inside-out were able to withstand seismic pressures up to 7.0 Richter scale. Alternative technology refers to construction methods that are different from the conventional methods of making buildings. Use of wooden logs at sill and lintels in stone masonry may sound completely foreign to people living on Gangatic plains but is a common practice in the Himalayan belts. Similarly, use of Ekra wall techniques using Bamboo splits is a wonderful example of light-weight walling system in Northeast India.

"INNOVATIVELY USE OF WASTE RECYCLED PLASTIC MATERIAL FOR THE SUSTAINABLE DEVELOPMENT OF ROAD."

Prof. Nikita Pawar; Urban designer & Assistant Professor; D Y Patil school of Architecture, Lohegaon, Pune

India is the second fastest developing country after China, also the second largest in road network after America. To uphold this position, it is very important to make a sustainable circulatory system. It functions similarly to the veins in our body and responsible for pumping up the economic development of the country. So, has many challenges to envision the road connectivity. According to the Global Status Report on Road Safety 2013, more than 2, 31,000 people are killed by road fatalities. Whereas, the CEO of a road safety NGO explains, the human errors are the major factor, but overlooking the quality of road construction materials are also amenable for road fatalities. To overcome this issue, there is a need to rethink on sustainable innovative materials in road construction to make it a safer mode of transportation rather than just expanding the connectivity. Thus, the paper will compare various plastic initiatives with other innovative construction materials across the globe to make safer and Sustainable roads. As in India, 'Swatchta hi Seva' mission launched by the government with a nationwide action of 'Say No to Plastic 'which emphasizes on recycling plastic and utilise in the road construction materials, mixing with bituminous. Similarly, there are various initiatives taken worldwide to reduce impact on the environment. The research shall adopt qualitative approach to highlight the innovative and sustainable ways for using waste recycle plastic as a contribution for the future road development.

"GREEN ARCHITECTURE: A CONTRIBUTION TO SUSTAINABLE AND ECO-FRIENDLY INTERIOR SOLUTION."

Pranesh Rajendra Shinde; B.Sc Interior Design; SEF's Suryadatta Institute of Vocational and Advanced Studies

The word sustainable itself means that it should not harm any of the natural resources either interior or exterior. So as to avoid this, keeping in mind the interior environment we should always think of the designers' characteristic standard & how important and comfortable is environmentally sustainable interior design is to the user. The aim of the research is to study selection norm for sustainable interior design solution. The objectives to achieve aim are to study manufacturer's selection criteria, environmental conditions and to study innovative sustainable eco-friendly interior design solutions. How can we achieve a sustainable eco-friendly interior environment related to commercial spaces? The methodology is classified into primary data and secondary data. Primary data includes live case study and secondary data includes book case study, literature review. The scope of the research is to create healthy, functional, comfortable & sustainable interiors without compromising aesthetic factors while meeting the clients' needs, budget schedule & design vision. The study is limited up to the sustainable interior design of commercial spaces. The research concludes that by integrating sustainable practises into interior design we can achieve human mental comfort, eco-friendly materials & products, healthy atmosphere indoors & an innovative solution to achieve energy efficient interiors.

"FUSING NEW METHODS WITH TRADITIONAL MATERIAL - RETHINKING INTERVENTIONS IN CHILD PLAY SPACE IN BANGLADESH."

Rahanat Ara Jafar, Lecturer; Tabassum Ul-Zannat, Architect; Tahjiba Tarannum, Graduate Architect CUET, Chattogram; BRAC IED, Dhaka

In 1991, Under the program of UNESCO and the Asian Development Bank, the Bangladesh government initiated the Development Plan "Education for ALL'' to improve access to education which results in the enrolment of 32.3 million children from pre-primary to secondary levels till 2018. But the focus is now on the quality of education through play-based development which is indispensable to develop children socially, emotionally, and physically that is neglected throughout the country. Despite having national guidelines, it is observed that playgrounds of primary schools are merely occupied with apparatus made of stainless steel in the name of play facilities. This relies on a shift of mentality towards reusing or adapting to traditional or local materials which is sustainable construction without new materials instead of those limited resources. By adopting a multi-methodological approach where the primary study will show the comparison between native and foreign playground design practices through case study analysis and other study will be conducted by representative participatory approach giving lead to children and community people to make guidelines. Within this article, child, play and playground concepts will be examined, and this will offer a guide so that it can give a promising solution for repurposing architecture.

"FRAMEWORK FOR IMPLEMENTATION OF GREEN ROOFS IN MUMBAI."

Ar. Rasika Chodankar, Associate Professor; Ar. Shweta Pariya, Assistant Professor; Aditya College of Architecture

Green roof is the environmental, social, and economic use of building roofs. Green roofs have been used as an environmentally friendly product to encourage sustainable construction. Green building initiatives have popularized the use of green roofs as a strategy to minimize the negative environmental impact of buildings on ecosystems. The Environmental and operational social-cost benefits of vegetated roofs are several and can be listed as; reduction of energy demand for heating and cooling, mitigation of urban heat island effect, reduction and delay of storm water runoff, improvement in air quality, replacement of displaced landscape, enhancement of biodiversity, provision of recreational and agricultural spaces, and insulation of a building for sound among many more. In spite of its multiple environmental benefits, green roofs have not been widely implemented in India. The aim of this research paper is to identify the reasons for the same, especially in the city of Mumbai, even though, theoretically, the climatic conditions of this city favor this technology. The data collected from literature will be validated in the Mumbai city context through survey and interview which will be conducted with green building experts, architects, end-users, and policy makers. The reasons will be represented through quantitative analysis.

"MONOLITHIC CONCRETE CONSTRUCTION IN HOUSING AT RAJKOT UNDER BSUP SCHEME - A POST CONSTRUCTION EVALUATION."

Riddhi Shah, Assistant Professor; Indubhai Parekh School of Architecture, Rajkot

'Monolithic concrete construction' is an alternate technique adopted in various large scale government projects for its evident and obvious benefits. It is a technique approved by BMTPC set-up under the Ministry of Housing and Urban Affairs, Government of India.

This paper aims to be an end product of a post construction evaluation of a housing scheme at Rajkot- Gujarat, India under Basic services to urban poor (BSUP) Scheme. This study is an example of action research, where the housing project at Rajkot will be studied with respect to its practical application, cost-effectiveness, affordability, time saving in construction, safety against disasters and functional aspects. A comparison of other conventional and traditional technology with monolithic concrete technology will be taken up in this study. The applicability and feasibility of the technology vis-à-vis other conventional construction will be evaluated. The Methodology comprises of Field observations, survey, interviews and literature review for Post construction analysis

The paper will be divided into 3 parts: the technicalities of monolithic concrete construction, the On-site survey and discussions with officers and engineers, beneficiaries of the housing and contractor as well as construction workers, and a comparison of a housing designed with the conventional construction system.

"ADAPTIVE RE-USE: AN APPROACH TOWARDS SUSTAINABLE ARCHITECTURE."

Sanyogita Murkumbi, Assistant Professor; BMS College of Architecture

This paper will explore the idea of sustainability along with the associated design and construction techniques in built environment, using resources to create more energy efficient building with an aim to bring balance between high quality construction and reduce impact on environment. Buildings are being demolished without considering the waste generated. This exacerbates the problem of housing shortage, which is getting more critical as cities are growing, and the demand for built space and the use of resources are increasing. Efficient handling of waste is an important factor in the development and progress of any nation, and the health of its people. The objective of the study is to appraise waste minimization techniques taken from concept of 5R: Refuse, Reduce, Reuse, Recycle and Recovery Techniques). Reduction is considered as the most effective and efficient method for managing carbon waste. Use of waste minimization techniques in creating sustainable waste management to identify the practices. Techniques that can reduce wastage at site and projects that use minimum new building material and uses more of recycled materials is a more sustainable and responsible choice for a building material. Building will have high impact on the environment and the economy of society. Building materials as a way for environment protect and sustainable development. Adaptive reuse shall have several benefits to lessen those impacts.

"EVOLVING ALTERNATE BUILDING MATERIALS AND THEIR IMPACT ON SUSTAINABILITY."

Sathwika P, Assistant Professor; Ashoka School of Planning and Architecture

Until the evolution of anatomical modern humans, counting on from the palaeolithic era or even earlier, there has been a constant evolution of building materials in each era/age. Not to ignore, each era has introduced at least one new construction material to the humankind. To add on, as a response to the depleting fossil fuels and natural raw materials, there has been persistent research & development in the field of architecture and construction, which has always presented to us a wide variety of construction materials to choose from. However, not each evolved material is environmentally sensitive, and it is believed that around 40% of global energy is consumed by building materials and components. Also, the drastic climate change at an alarming rate in recent times is affecting our resistance to seasonal changes and climatic effects. In this scenario, are our evolving alternate building materials reliable, considering the health of our planet? This paper intends to analyse the emerging trends in alternate building material and their impact on the global environment. The analysis for the subject would be presented through appropriate case studies/examples.

"IMPACT OF GREEN SPACES ON MENTAL HEALTH AND WELL-BEING; A STUDY ON EMPLOYEES AT SOFTWARE COMPANIES SOLUTION."

Shashikala Sewwandi Galappaththi, Undergraduate of Bachelor of Landscape Architecture; DR.(MRS) A. A. Hettiarachchi, Senior Lecturer, Chief Student Counselor; Department of Architecture, University of Moratuwa, Sri Lanka

Workplace pressure is a common issue that can cause depression and anxiety of workers affecting their productivity. It was hypothetically assumed that exposure to nature can psychologically induce workplace satisfaction leading to less stress due to the restorative effects. The literature establishes with a strong frame of evidence that the regular touch with Nature is required to reduce workplace stress while maintaining good mental health. Exposure to nature as a strategy to maintain good mental health at the workplace was tested by this preliminary field investigation with reference to software companies(n=3) in Sri Lanka. These cases (C1, C2, C3) were selected based on the existing levels of greenery, with high density, moderate density, and low density of greenery, respectively. An online questionnaire survey was adopted with three volunteer groups of employees (n=20 per case). Aligning with literature, the study revealed a direct association between the density of greenery vs stress level and satisfaction of workers. Respondents of C1 were found to be less stressed(88%) and more satisfied (80%) with their job compared to the other two case studies, and respondents of C3 are more stressed(57%) and less satisfied(71%) with their job compared to the other two case studies. 94% out of the total respondents, claimed that exposure to green spaces increases working efficiency by maintaining good mental health (27% agreed, 67% strongly agreed). The perceptions of respondents clearly expressed that green spaces help to maintain good mental health of employees at workplace.

"REVAMPING OF FLOOD DEPOSITS INTO CONSTRUCTION BLOCKS: AN EXPERIMENT TO PROVE ITS EFFICIENCY."

Sibin Sabu,Student; Ar.Indugeetha .B,Associate Professor; Marian College of Architecture and Planning Trivandrum

Soil is used as a building material in different parts of the world. With the least demand for resources, it is economically the most efficient means for house construction in developing countries. The 2018 flood in Kerala resulted in a huge loss of lives, many lost their homes, some houses were partially destructed, and the overall effect was devastating. Post-flood Kerala saw huge deposits of waste and clayey soil accumulated in lands which need to be cleared somehow. Why can't we use these deposits as raw material for construction? To study this possibility, deposited soil from areas of Periyar, Kerala were collected, and several tests were conducted on it to check its efficiency. Different types of blocks were prepared from this soil with and without adding stabilizers. Tests such as compressive strength and total water absorption were conducted on it to evaluate their strength and durability. Finally, the values and properties of prepared blocks were compared and its efficiency to be used as a construction material is proved. This paper is a review of the creation of such clay blocks from flood deposits and the scope of using them in building walling system.

"MORTAL BUILDINGS – IMMORTAL FOOTPRINT."

Ar. Swati Gupta, Assistant Professor; Aditya College of Architecture

Buildings have a limited lifespan but leave material residual set-in concrete, which fills dumping yard on grounds for ages. Not all buildings are designed to take the test of time; most are utilitarian and once the purpose is over, liberating land is tedious, energy-intensive and generates colossal waste. Building can be designed for every part of it, could disintegrate to go back to its natural state. Firstly, the paper attempts on identifying biodegradable material options which may replace conventional construction material; and project the effectiveness of these in reducing construction waste. Secondly, to classify options of designing modular parts of the buildings which may be reused/recycled multiple times for different purposes, without demanding factory modifications. The paper also determines challenges in the application of these materials in Indian scenario. Selected case studies are examined to provide an overview of the contribution of these measures in closing the loop. Finally, a case of housing redevelopment project in Thane city is assessed to compare waste outcome for both situations of conventional construction and using biodegradable materials with modular, recyclable sections. The study concludes that feasible and worthwhile waste reductions are achieved in mainstream housing construction by designing biodegradable buildings.

"INCREASING THE LIFECYCLE OF BUILDINGS THROUGH RE-USE OF CONSTRUCTION AND DEMOLITION WASTE."

Ar. Swati Ray, Associate Professor; Aditya College of Architecture

In a world which has been pillaged by the greed of the construction industry, the time was never better to reflect, awaken the sleeping conscience and commit towards restoring a greener planet. Certain estimates place the current situation of Construction and Demolition waste at an exceeding 110 million tons annually. Without considering the utilization of resources, the amount of accumulated waste for just the past 18 years has reached 1.1 billion tons. Construction Debris which almost always ends up in landfills or in water bodies today can be reused in several ways to maintain ecological justice. The debris, metal sections, wood, cables, railings, glass can all be reused in several creative ways to avoid wastage and present innovative solutions in the design of the material, the finishing and non-structural elements like parapets and landscape furniture. This will in turn reduce the burden on the demand for new resources and cut transportation costs and reduce pollution. As Architects and structural designers, it is not enough to create new buildings as zero discharge projects but also make a conscious effort towards this facet of carbon negativity. The poster aims to create awareness amongst architects to entwine the idea at the inception of design process.

"IMPACT OF WALLING MATERIALS ON COOLING CONSUMPTION OF THE WARM-HUMID CLIMATE OF PUNE."

Mihir N. Vakharia, Assistant Professor; Bijal N. Vakharia, Assistant Professor; Dr. D Y Patil College of Architecture, Akurdi Pune

This study focuses on the environmental performance of conventional walling materials used in Pune.
The passive design strategy of using thermal mass also considered observing the performance of construction techniques on cooling loads. The research work derives appropriate walling material and construction techniques to analyze affordable and energy-efficient construction techniques suitable for Pune city. Pune city falls under the warm-humid climate zone (ECBC, 2017). A residential vernacular architecture house considered for this study and a replica model prepared for simulation to analyze and evaluate the best building material and construction technique could give a better indoor environment with minimum energy consumption. This research comes up with a comparative study of walling materials, construction techniques with a cavity wall, and high-mass walls through simulations. The study deals with the performance of the vernacular house form and gives a brief to suggest the best possible building material for the mentioned region.

"PERFORMANCE ASSESSMENT OF ALTERNATE CONSTRUCTION MATERIAL AND TECHNIQUES IN SHAPING SUSTAINABLE BUILT ENVIRONMENT."

Poonam Pravin Pasare, architect planner, Horizon

Buildings have an immense impact on the environment. Concrete, steel, and burnt clay bricks have been the key building materials as yet. However, it has highlighted a major problem and growing concerns about the environment, climate change in particular. Cement production is the third biggest source of carbon dioxide emission also a significant amount of fuel is used for the production of steel and bricks which is contributing to global warming. Thus demand to shape the built environment and producing energy-efficient buildings using Alternate Construction Material and Techniques (ACMAT) is the crucial demand for future cities. The current literature does not place sufficient emphasis or a panoramic approach to the ACMAT. Hence, this research aims to expand the current understanding of this topic, encourage new connections, and provide further recommendations in the field by exploring trends in ACMAT and by bringing visibility to the performance of ACMAT to help enhance the urban environment and knowledge about ACMAT. This paper proposes strategies and a toolkit that will help to assess the ACMAT thus decision-makers would employ to promote the use of ACMAT. Research is rest on both action-based and reflexive. It is noted that ACMAT hasn't seen success in mobilizing city-wide and scaled up actions to move to a sustainable future furthermore the use of ongoing ACMAT's is subsided due to design, technical and economic constraints. Use for high rise building, structural integrity, and durability have been major limitations for stakeholders to promote the use of ACMATs. Therefore, the course of action proposed can be regarded as one of the possible ways for decision-makers to improve the current situation in the building sector and beyond.

"REPURPOSING NEW TECHNOLOGIES FOR HISTORIC BUILT ENVIRONMENTS - Investigating The Viability Of Three-dimensional Printing Techniques To Enhance Heritag Conservation In India.

Priyanka Panjwani, Visiting Faculty; Vivekanand Education Societys College of Architecture

Conservation of heritage buildings is a sustainable approach to prolonging the life of structures as well as preserving the cultural identity of a place. In a developing nation like India, the conservation field is growing with projects that are proposed and executed at a restricted pace. This occurs due to different challenges that emerge during the process. Also, the growing risks due to development pressures demand for new solutions to keep up with the urban transformations. Hence it is vital to analyse the various issues in heritage projects in order to resolve them sensitively. Use of new technologies such as 3D printing in Indian manufacturing industries is rising, but it is slowly entering the construction field. This paper aims to investigate the viability of the 3D printing technology to augment the conservation of different types of Indian heritage buildings. This is achieved by exploring the tangible and intangible aspects of conservation projects in the past decade of the country. It is observed that cost effectiveness, timely projects and job creation are key benefits in the use of 3D printing, although machine prototyping stands a real chance of severely affecting traditional materials and craftsmanship. Creative involvement of artisans in the printing process with indigenous material experimentation may possibly give hope for better integration of the new and the old in the Indian context.

"RETHINKING CONSTRUCTION SYSTEMS: THE SUSTAINABLE MATERIAL."

Sushriya Dhamanekar, UG Student; Mrunmayee Thakurdesai; KLG GIT

Construction industry plays a major role in the way towards which we lead the sustenance of the planet and its habitants. By using everyday recyclable materials in construction with methods and techniques that could be widely used by individuals we would not just reduce the burden on the planet for raw materials but also help reduce the waste produced. A lot of these products get wasted after a first use and could be repurposed into construction materials through some processing. Also, the use of energy efficient materials reduces the embodied energy usage. This helps reduce the load on fuel use and in turn reduces pollution. As the construction industry has an impact on all walks of life, both directly and indirectly, the entire system of construction, from materials used to processes involved, requires a scrutinous review that is aimed to create a sustainable habitat. At times like these when climate change, the imbalance in the ecosystem and depletion of natural resources are concerns faced by not just the mankind but all habitants the construction industry could act as a boon by doing its bit. This paper focuses on materials and methods to make our built environment be called a little less of a "concrete jungle" and a bit more of purposeful living space".

"EMBODIED CARBON QUANTITY IN KERALA HOUSING PRACTICES: PREFABRICATED STRUCTURES AS AN ALTERNATIVE TO MEET SUSTAINABILITY."

Alisha Roy K, Shynu Robert; Undergraduate,Department of Architecture,TKM College of Engineering, Kollam

Buildings have an immense impact on the environment. Concrete, steel, and burnt clay bricks have been the key building materials as yet. However, it has highlighted a major problem and growing concerns about the environment, climate change in particular. Cement production is the third biggest source of carbon dioxide emission also a significant amount of fuel is used for the production of steel and bricks which is contributing to global warming. Thus demand to shape the built environment and producing energy-efficient buildings using Alternate Construction Material and Techniques (ACMAT) is the crucial demand for future cities. The current literature does not place sufficient emphasis or a panoramic approach to the ACMAT. Hence, this research aims to expand the current understanding of this topic, encourage new connections, and provide further recommendations in the field by exploring trends in ACMAT and by bringing visibility to the performance of ACMAT to help enhance the urban environment and knowledge about ACMAT. This paper proposes strategies and a toolkit that will help to assess the ACMAT thus decision-makers would employ to promote the use of ACMAT. Research is rest on both action-based and reflexive. It is noted that ACMAT hasn't seen success in mobilizing city-wide and scaled up actions to move to a sustainable future furthermore the use of ongoing ACMAT's is subsided due to design, technical and economic constraints. Use for high rise building, structural integrity, and durability have been major limitations for stakeholders to promote the use of ACMATs. Therefore, the course of action proposed can be regarded as one of the possible ways for decision-makers to improve the current situation in the building sector and beyond.

"ARCHITECTURE THROUGH REPURPOSE- ENERGY EFFICIENT DRIVE IN INDIA."

Ar. Kamini Badnore,Asst. Professor; IPS Academy, Indore

The Industrial Revolution altered the world by reforming trade, commerce, and community. After the industrial revolution, by the virtue of better medical facilities and advancements in technology the population exploded. This led to the creation of new infrastructure and a certain kind of built environment and because of industrialization, cities became more concrete and the need to construct sustainable buildings and energy efficient buildings was recognized. This research funnels the energy drive in Indian context. Out setting with the global energy scenario all over the world. Indian Energy drives in different spectrum like agriculture, industries, residential etc are explained. The agencies working to help achieve a net zero energy building plays an important role in achieving ZEB. This research includes study of various factors like orientation of the buildings, insulations, fenestration, efficient HVAC systems, lighting systems etc. Calculations according to theories and proven facts are considered for energy consumption and conservation. It is observed that through study of all the above-mentioned factors there is a way to conserve energy of a building making it energy efficient and a net zero energy building in terms of site energy, energy source cost and energy emissions.

"INNOVATIVE APPROACH FOR ENHANCEMENT OF WARDHA CITY TOURISM BY SUSTAINABLE SOLUTIONS."

Anjali V.Narad, Assistant Professor, Radhikatai Pandav Institute of Architecture,Dighori, Naka,Nagpur,

Wardha is a City known for having all main historic places and temples with religious and archaeological significance. Apart from few destinations, majority of sites are important as a local tourist destination and have been attracting local visitors during weekend and during specific days of religious and social importance.. My research paper demonstrates the applicability of management methodology and tools to the strategic development of the Wardha tourism industry at national levels of economic development. I want to chalk out the possibility of sustainable development of the tourism industry taking into account the current contribution of Wardha tourism to the economy generation of the city. Some sites would appeal to specific interest tourists. In view of the existence of a variety of tourism assets, ranging from Sewagram Ashram to temples or heritage sites and jungle safari, it can be said that tourism in Wardha has not yet realized its full potential. The absence of an integrated effort to promote the many facets of Wardha's scenic beauty, wild life, history and culture seems to be the major stumbling block. As per my primary interviews with various stakeholders, the district is one of the poorest tourist destinations in Maharashtra. Compared to the state, Wardha represents only 2.56 % of the tourist arrivals to the state of Maharashtra. Paper concludes with the suggestions for strategy of sustainable solutions for tourism development at Wardha district.

"WAYS OF USE CONSTRUCTION DEBRIS TO AVOID POLLUTION & WASTAGE OF MATERIAL - UPCYCLING CONSTRUCTION DEBRIS."

Pragati Subhash Auti, Student; Pravara Rural College of Architecture, Loni, Tal-Rahata, Dist- Pune, Maharashtra.

Now days it's like a ritual to renovate the building or demolish it to construct a new. And whatever waste is comes from it is get dispose in the dump yards or wetlands but this is very wrong way to dispose it. Because of this behaviour pollution issues are happens. For constructing new building we can use construction debris to avoid wastage of material. So there is need upcycle the construction debris. Types of things coming in construction debris, need of upcycling of construction debris, ways to use the materials getting from construction debris and techniques to make construction debris more innovative these are the objectives of study.The study is completed through the 6 months of hands on work experience at ecological practicing organization. Discussions with researchers & experts. Use of construction debris as a building material is good solution to conserve the material resource and avoid pollution. This study presents how construction debris is upcycle to make new buildings more innovative and pleasant.

"WASTE HIERARCHY FRAMEWORK FOR CONSTRUCTION AND DEMOLITION (C &D) WASTE IN INDIA: USE OF URBANITE

Lavanya Vikram, Associate Professor; Arpana Betageri, PG Student; School of Architecture, Ramaiah Institute of Technology, Bengaluru, India

The need for the appropriate infrastructure and build environment has phenomenally increased due to the boom in population and IT Industry. The production of waste that is generated due to the demolition of the old structures is more than the construction of the structure itself. The Construction and Demolition (C&D) Waste in India has reached 24 million tonnes in 2010. This paper shows the project management strategies that have been laid out by the Environment Protection Agency (EPA) which is known as the Waste Hierarchy. The waste hierarchy could be a binding and also a legal framework to handle the C & D waste in India for reducing the burden on the landfill area for the sustainable future of the construction industry. The paper will explore on the onsite debris of concrete waste demolition materials also known as Urbanite, and its various usage in landscape and outdoor requirements. It will address the versatility of the material Urbanite and its merits and demerits, few construction techniques and methods of execution on site. With the strategic planning approach, the reuse of urbanite onsite concrete debris could be sustainably used by reducing the burden on the environment.

"USING BUILDING WASTE BY RECYCLING THROUGH STRATEGY PLANNING."

Sharath H Aithal, Assistant Professor; Faculty of Architecture, PES University, Bangalore, India

The building Construction and demolition has been touted as one of major waste generators in India and is one of the factors that have been constituting GHG emissions and garbage menace. This waste recycling should and must constitute an indispensable component for a construction and demolition planning and overall management strategy. Like the traditional recycling approaches these waste cannot be dumped in off-site facilities and has to be is treated directly at source. This would also provide architects to plan better utilisation of resources and improve client relations. This study is aimed at developing a planning strategy for implementing on-site recycling for usage in same construction. The analysis indicated that main barrier India is site space constraint and in this case a lack of support from off-site recycling and vision of planners and architects to use new materials only. This can be improved by government establishing a demand-supply information-sharing platform and developing an in planning based strategy for all building material recycling. This study can also provide useful references for others in developing their own waste recycling strategies in the future.

"TACKLING THE E-WASTE RECYCLING MENACE IN INDIA."

Batul Zainab, Assistant Professor; MET Faculty of Architecture, Moradabad UP, India

Electronic waste (e-waste) comprises of wastes generated from used electronic devices. Due to the presence of toxic and harmful materials, it has become a matter of concern and if not properly managed, it can adversely affect the environment. The situation is alarming as e-waste is one of the fastest growing wastes in India. There is a need to study and adopt some practices to tackle the growing threat which includes the flow of E-Waste from generation to disposal at different levels which have direct or indirect impacts on urban areas and its built and non-built assets. This research investigates the impact of activities involved in E-Waste handling and the flow of network of its trade chain in the context of old Seelampur Delhi, as it is the biggest e-waste scrap market of India and to review the case of Moradabad which can serve as centre for e-waste dismantling and recycling unit coming from NCR. This paper will discuss the present scenario issues and handling strategies of e-waste in context to the above-mentioned cases. It will also address the overall growth of E-Waste chain and its impacts affecting that area. Further, this paper will focus upon the policies and regulations provided by the Central and state government bodies and concludes on how they can tackle the menace of E-waste recycling efficiently and progressively.

"ARCHITECTURE THROUGH REPURPOSE."

Ar. Jignesh Panchal, Principal Architect; Jignaesh panchal and associates

India is at a threshold of changing its world status from Developing to Developed Nation. The population residing in urban areas in India, according to the 1901 census, was approx. 11.4%, increasing to approx. 28.53% by the 2001 census, and is now currently at approx. 35% in 2019 according to The World Bank. According to a survey by UN, in 2030 40.76% of country's population is expected to reside in urban areas. This is changing the urban fabric exponentially. We are witnessing the change in the Skyline of all the major cities be it Delhi, Mumbai, or Bengaluru. Construction industry is now dealing with the new-normal called – REDEVELOPMENT PROJECTS. In simple terminology Redevelopment means replacing the old built forms be it Low rise buildings, bungalows, Mill lands etc. etc. with New High-rise Structures. In the process, not only the existing structures are demolished but also their foundations are uprooted along with the services attached to it. A huge amount of debris is getting generated every day and is increasing day in and out. Debris management is becoming complex and complicated to the concern Authorities, and they are finding it difficult to address this issue. This brings us to very important topic - Project Management strategies considering Recycle and Repurpose on Onsite Debris with innovative building material approach. It is not only a topic of research or discussion but need of the hour.

"ENERGY EFFICIENT ARCHITECTURE THROUGH PASSVE PLANNING POLICIES."

Anjali Saraswat, PG Student; Dr Satish Pipralia, Associate Professor; Malaviya National Institute of Technology, Jaipur

Energy Efficiency means using less energy substantially aiming to eliminate any waste of energy. With energy efficient strategies incorporated in architecture and planning comes innumerable benefits of reduced greenhouse gas emissions, demand of energy imports and lowered costs for households and economy- wide level. Urban Planners significantly help in achieving energy efficient cities by allocating open green spaces. The existence of open green spaces allows for efficient ground water recharge, fresh air generation and better life for city dweller. Open green spaces should be designed and allocated such that all the surrounding buildings in the area get enough natural air and ventilation. The approach of using certain materials to achieve energy efficiency in buildings is redundant. A practical approach is to utilize passive planning policies aiming at increasing the scope of natural light and ventilation so that the energy consumption in the surrounding building reduces as a by-product. Indian cities current trends of open green spaces are very low varying from 4-5% mostly which raises concerns to practise energy efficient architecture through passive panning polices. The paper discusses two contrasting areas in National Capital Region, comparing their built up and open green spaces scenarios using GIS Maps as a tool and reflecting upon how the allocation of open green spaces has led to energy efficiency to the whole area and inhabiting buildings. The paper concludes with planning strategies to generate design outcomes leading to sustainable built environments and helping to harvesting open green spaces as valuable resources.

"RECONSTRUCTION OF 'JAIN MATH' FOR REPURPOSE TO A BOUTIQUE HOTEL AT AMBA, KOLHAPUR, MAHARASHTRA, INDIA."

Anjali Surat Jadhav, Associate Professor; Sushma Kulkarni, Principal; S.P.S.M.B.H.'S College of Architecture, Shivaji University, Kolhapur, Maharashtra, India.

Conservation of built environment and historic structures need sensible management of resources, sound judgment and perfect wisdom of proportion. Conservation and repurpose is the process which helps to prolong the life of the heritage structures for its use of today and in future. Term reconstruction implies that certain structural or design changes have made in building; in order to function in its new use. This paper reveals the principle of conservation i.e. reconstruction and repurpose in the application of 1500 years old historic 'Jain Math wada'. The reuse of Jain math Wada for a repurpose of Boutique resort different from the original one is adaptive use. The work was carried out in the district of Kolhapur, a fair composite climatic zone. The old Math structure was totally numbered, carefully dismantled in stages without affecting its heritage value. The materials, was transported to site Amba, district Kolhapur in Maharashtra state 60 km away from the existing place. The Jain Math was re-constructed wisely for the repurpose of boutique hotel from the construction waste of old heritage wada without losing the cultural values in least cost which is the pride to the owner and cheerful experience to the end users.

"ADAPTIVE FACADES AS A PASSIVE DESIGN APPROACH FOR THE BUILDINGS IN UAE."

Antima Kuda, Associate Professor; Arushi Malhotra, Asst. Professor; Ranjana Dobriyal, Asst. Professor; Manipal Academy of Higher Education, Dubai, UAE

The availability of an affordable and heavily subsidized energy by the government of UAE increased its consumption leading to endangering the environment in the past decades. Thus, the supply of adequate and reliable energy was felt like a necessity securing the environment in a sustainable and benign manner. To address this, the UAE government took some strong initiatives along with ESTIDAMA committing itself to adopt strategically the designing and installing adaptive facades aesthetically and for improving the building's energy performance utilizing various energy, material, and land resources. It improved the thermal comfort reducing the dependence on active cooling systems for indoors. This paper presents the results of the "Energy – Building" relationship as sustainable development and the methodologies as to how the Energy conservation in a building is achieved, incorporating the Passive Design. The research will analyse two buildings as examples using adaptive facades with automated control systems vis-a-vis its effect on the building environment as a vital aspect of Passive Design evaluation of its performance and occupant behaviour. The assessment mainly focuses on pre- and post-construction phases of adaptive facades. It includes the design-assist phase, which cites the durability test, visual mock-up, onsite mashrabiya mounting, and the weather stripping.

"ZERO ENERGY BUILDINGS IN ANCIENT INDIA - REPURPOSED ANCIENT BUILDING CONSTRUCTION TECHNIQUES ."

Ar. Pranita Piyush Agarkar, Assistant Professor; Aditya College of Architecture

As a proud Indian citizen, I would like to explore research on Ancient Indian construction technology which is lasting scenes long ages in harmony with nature in all five climatic zones in India. The Indian culture has a strong connection with nature through various rituals and festivals which celebrate every climatic change with nature which also reflects in all the ancient architectural practices. For example, the caves in Ajanta Elora are the best example which blends with nature without disturbing its natural beauty. Talking about architecture we cannot ignore material and techniques used in construction. As discussed above the Indian architecture is lasting for long ages using natural building materials such as mud, stone, wood, steel, lime, cereals, etc. And using this material only Indian architecture is successful in achieving durability, acoustical, thermal, fire protection, waterproof, and earthquake-proof structures. Also, using the same material we rebuilt the whole structure which was demolished due to natural calamities or the external agents. The example of the same is The Bateshwar Hindu temples were built between the 8th and the 10th-century & are a group of nearly 200 sandstone Hindu temples and their ruins in north Madhya Pradesh in post-Gupta, early Gurjara-Pratihara style of North Indian temple architecture.

"RETROFITING: TO ACHIEVE ENERGY EFFICIENT BUILDINGS - IGBC Existing Building Operation & Maintenance."

Ar.Priya R. Mirani, Assistant Professor; B.D.C.O.A. Sevagram Deoli-Wardha, Maharashtra

In today's context we need to focus on our environment which is badly affected by the building industry. We need to design energy efficient buildings for the betterment of our future. And somehow we are doing that but what about the existing buildings who are consuming energy for heating and cooling, for that we need to do a process of retrofit to create the intended ecological impact. It benefits in the reduction of water & energy consumption. In this paper, the overall performance of the building is evaluated as an energy efficiency design parameter in the public building. In this paper retrofit options are determined for the energy efficient retrofit of the Pune Municipal Corporation building which will do on the said rules of IGBC. T he operational savings through energy & water efficiency could range from 15% to 30%. Other benefits of green existing buildings include enhanced air quality & higher satisfaction levels of occupants.

"PROCESSING IRREGULARITY - ENGAGING THE DIGITAL WITH MATRIAL CULTURES."

Archana Chenthil Kumar, Matthew Osborne, Amir Arsalan Tahouni; Junior Architect; University College London

This paper focuses on an approach to re-imagine the way we use basic building 'materials' that are available in the form of debris or construction waste. Within the context of this project, 'materials' refer to articles which are considered unusable by the construction industry in their natural state, due their irregularity. This paper investigates an approach at the intersection of designing with irregular materials and computational processes. The project introduces a 'digital fabrication' workflow to create a complex non-standard assembly. The assemblies are fabricated with the 'as found' materials and is fully reversible. An approach that aims to be sustainable, economical and contextually engaging. This paper offers

- An approach to develop connections from appropriate scanned data of the raw material.
- Results of the initial physical experiments and review of their performance.
- Insight into using augmented reality to assist the construction of such non-standard structures.

Overall, the paper outlines the end to end development and prototyping of a new language in stone upcycling, which can be potentially adapted for various materials.

"ENERGY EFFICIENT DESIGN STRATEGIES."

Barkha Kataria, Head of Department; MET, faculty of Architecture, Moradabad.

This document focuses on the use of sustainable design principles, in redesigning a building at a given site. It deals with what changes can be made to design to make the building more efficient in terms of thermal performance, energy use, material palette and environmental performance, while keeping the original essence of a passive design. The objective of this report is to make recommendations to improve the sustainability of a chosen building by optimising its orientation, built form and planning as per the climatic conditions to improve thermal performance while controlling energy demand. The scope of work also includes: Improvising the building services to improve the thermal comfort of the indoor environment, Optimising window shading, Optimising building materials to improve their thermal and environmental performance and Strategising the measures to save water. The methodology will be to evaluate the performance of the chosen building by Analyzing the original design by climatic factors, orientation, material consideration, climatic strategies. Analyzing strength and weakness of the building. The study will focus on redesigning the building keeping in mind the adverse climatic conditions and accepting the global warming challenge in future years and evolving the design with energy efficient strategies.

"AN ANALYSIS OF BUILDING ORIENTATION AND ITS IMPACT ON THE ENERGY CONSUMPTION IN INSTITUTION BUILDING."

S. Kavitha, Assistant Professor; S. Catherine, Assistant Professor; Sathyabama Institute of Science and Technology, Chennai, India

Construction Industry is going through tremendous growth. Due to rapid growth of the construction sector more challenges need to be met to protect environmental factors. Architecture as a device can handle climate, technology and culture. Environment being an important pillar of sustainability needs more attention by introducing strategies that promote growth in a sustainable environment. As we explore environmental parameters, excess of energy use plays a negative role in environmental protection in the built up environment. Designing a building with energy efficiency can have incredible benefits in both tangible and intangible ways. Implementation of passive architecture also acts as a design strategy that will result in the energy savings in the built environment. Passive architecture includes orientation, courtyard, shading device, building envelope, shading from trees and adjacent buildings. The main aim of the paper is to explore the orientation measures implemented in the building that could lead to energy efficiency. The study is carried out in one of the buildings in an institute which comprises three blocks (G+1 Structure) each oriented in different directions with central open space. This paper further investigates the impact of orientations and other parameters through quantitative analysis, shadow and solar radiation analysis that would describe how the identified parameters influence the performance of the building. This concludes mitigating strategies for improving the performance of building with energy efficiency.

"ARCHITECTURE FOR A CIRCULAR ECONOMY - EVELOPING A CIRCULAR DESIGN FRAMEWORK."

Ar. Shanmathi M, PG Student; School of Architecture and Planning, Anna University, Chennai, India

The Built environment is the place where we spend the largest part of our lives. Its quality has a great impact on how we define ourselves, how we act and feel. But it also concerns technical aspects. What technical solution we offer determines how our buildings will eventually perform over their whole life-cycle. This is important because cities make a huge influence on our environment. We are creating a negative impact and this impact is huge. Circularity is one of the solutions which can lead to minimizing this impact and one of the most important topics in the sustainable development. But the implementation of this concept poses a huge challenge. This research focuses to create efficient Closed-loop system that creates no unusable waste but promotes circular systems and products. To demonstrate the possible shift to a circular construction industry by developing a practical Framework and also evaluate the process of whole-life carbon analysis. The Circular Economy design will emphasis on Self-sustaining with Renewable Energy, Stimulate diversity, Design for Disassembly and Design with Bio-based materials. This Study explores the systematic problems and deficiencies of our prevailing linear economic system and limits itself into the application of circularity within Urban Environments. The need for this research is to resolve the need for improvement in the construction industry and to transform its already detrimental effects on the environment into a positive footprint, a drastic change from current practice is necessary.

"THERMAL PERFORMANCE ANALYSIS OF NATURALLY VENTILATED HOUSING SCHEMES IN HOT AND HUMID CLIMATE."

Ar.Surya Rajkumar, Associate Professor, Sathyabama Institute of Science and Technology, Chennai; Dr.Shanmuga Priya.G, Associate Professor, School of Planning and Architecture, Vijayawada

Building envelope plays a major role for achieving energy efficiency and thermal comfort of the occupants in their indoor environment. Optimization of building envelope in naturally ventilated buildings helps to reduces heat ingress into the building and in turn reduce the cooling load in the indoor environment. This study aims to identify the thermal performance in naturally ventilated residential buildings located in hot and humid Climate of Chennai. Depending on the climatic conditions and building types, the design of building envelope helps in reducing the heat transfer into the indoor environment which can save 10-30% of total energy consumption. With the help of different wall assemblies and energy associated with thermoregulation in the buildings, the energy efficiency of the building can be improved. In this Research, building envelope were tested with two different types of wall assemblies with variations in material thickness. The different wall material and thicknesses, insulation thicknesses were considered with respect to U-Values of each material for optimization of building envelope as per Indian building code. The existing layouts of residential apartment in Chennai were chosen and energy simulations were done with computational software. The result of different wall assemblies with combination of varied wall and insulation thicknesses show significant improvements in the performance of the buildings and suitable building materials were recommended for the housing schemes.

"DEVELOPMENT STRATEGIES AND MANAGEMENT POLICIES TO REVIVE THE LOST CANALS OF DEHRADUN CITY."

Prateek Dhasmana, Assistant Professor, Chitkara University

This paper intended to study the lost status of the canals in Dehradun city and to examine the last existing canal i.e. Kalanga canal as well as defining the importance of the open canal system in the daily life of the local people and to the city. Other parameters include finding the tourism potential generated by canal, and its importance as an element in the natural setting of the city. The study is conducted between the 6km stretch of Maldevta and Raipur (Kalanga canal). Primary survey is initiated which explored the information related to the use of canal as well as their perception towards the canal taken about the ongoing undergrounding of these canal for development works. Secondary study include reviewing similar canal systems in different areas and taking positive aspects from them as well as water quality assessment of the existing canal system with the help of government reports. The findings indicated that water quality was good opposing the government claim of water being polluted apart from that key issues related to open canal system were identified and the findings from literature were used as a tool and key interventions were framed for the revival of Kalanga canal. The study indicated that the authorities have taken an "escapist" path in the name of development of the city. Canals have importance in a city like Dehradun which is a valley and has different topographic conditions. Trivandrum city is a fine example where they have conserved their natural setting to increase development rather than neglecting it.

"STRATEGIZING FOR A NEW BUILT ENVIRONMENT."

Riddhima Khedkar, Assistant Professor, IES College of Architecture, Bandra

The terms 'Liveability' and 'Sustainability' are very contemporary terms. They resonate with doing/living well and are concurrently used with the term well-being. The United Nations aimed to make cities and settlements inclusive, safe, resilient and sustainable. Over time we have managed to 're-purpose' our homes to suit our needs as and when required and have gone further ahead to find our own little ways and means to create a conducive sustainable environment. If we as citizens have managed to do so, is there a possibility that all of us together can create an environment in our cities leading them to be re-purposed? Are we repurposing our cities to be more liveable or responsive or sustainable? With small interventions and strategies can we have key policies to achieve an inclusive and sustainable urban development for our cities? This paper aims to explore the ways and means that we as citizens can use to re-purpose our cities thereby making our urban environment a more habitable & resilient place not just for us but for our future generations, through the goals set by the United Nations Sustainable Development Goal 11 (Sustainable Cities and Communities), and looking at sustainable communities that are thriving around us. The strategies will further be used as guidelines and a means to design and develop a modular program for the built environment of cities which can be used in the context of Indian cities. Key Words: Development, environment, goals, liveability, sustainability.

"RESTRUCTURING & PLACEMAKING OF A HISTORIC COMMERCIAL CENTRE."

Akanksha Katare, Assistant Professor; Aditya College of Architecture; Nishant Gupta, Project Manager; MHRL, Mumbai, India

Vintage cities in the world over & specifically in India, more often than not, are divided into 2 parts: Old-city & New-city. Hence, they face the dilemma of how to improve the blighted old city that got left behind with its narrow streets and old ways. In the light of old precedents; the background information of current urban theory; a different economic and demographic situation; and the addition of newly renewed parameters like sustainability and good community life; a new strategy needs to be devised. To further analyze the above, the focus of this study shall be The core of Old city: its Bazaar (Market), which is full of spontaneity, movement, interactions etc., and the reason why a Bazaar anywhere in India is so special. The intent of this study is to analyze how to improve the general quality & efficiency of spaces (& hence, the standard of life) while preserving the special characteristics of this area like heritage, diversity and density in the planning. The idea is to retrofit the old city to accommodate contemporary living and working while retaining the positive characteristics. The strategy tries to direct market forces to create a change in the area.

"CURRENT TRENDS IN DECENTRALIZATION OF WASTE MANAGEMENT."

Ar. Krutika C.Band, PG Student; Prof. Namrata Gourkhede, Assistant Professor; smmca, Nagpur, India

Problems of solid waste management are growing with rapid urbanization and change in the lifestyle of the people. The situation is becoming critical with the passage of time. It is one of the most important functions of environment conservation that needs immediate attention so as to control the adverse effect of waste disposal on human beings and on the climate. The current practices of managing solid waste management in Indian cities creates an unsustainable urbanization pattern due to centralized waste management. Large amount of waste is dumped on the dumping ground rather than recycling it at the source. The metro cities are growing by 5% per annum. Segregation and recycling of waste are mainly carried out by the informal sector, reducing the volume of waste by 10–20% in cities. In the present scenario, there need to be innovative, effective and sustainable models to address the public health and environmental issues. Decentralized Waste Management is all about each community, locality or a society managing and processing their waste within their premise and not sending to a centralized large facility or often landfill. The underlying principle reduces the quantity of waste at source by involving community to adopt practices like segregation of waste, composting, bio-methanation etc. Methods can be implemented: Recycling waste, decentralized composting, vermi-composting/pit composting & small scale anaerobic digestion (Bio-Gas). Sustainable SWM implies both environmental sustainability, (through segregation-at-source, composting/bio-gas and an emphasis on the waste hierarchy of reduce, reuse and recycle), as well as social sustainability (through effective decentralization of waste management, and inclusion of the informal work force that is engaged in waste recovery and recycling). The current practices in decentralization of waste management in Indian scenario which will be discussed further in paper.

"FACTORS AFFECTING THE MICROCLIMATE IN THE CITY CORE AREA OF PUNE."

Ar. Madhura Rasane, Partner Architect; Studio7.Inc; Dr. Sujata Karve, Professor; Ar. Mahesh Bangad, Assistant Professor; MKSSS's Dr. Bhanuben Nanavati College of Architecture for Women, Pune, India.

The modern city of Pune has many distinct neighbourhoods. These include the numerous peths of the old city on the eastern bank of the Mutha River. Peths are considered to be the cultural heart of Pune. The Old Wadas (residential units) are getting replaced by high storied buildings. The constant development is leading to increase the number of buildings and reducing the open areas of the neighborhood and it is also affecting the resident's activities. It is important to maintain the existing city fabric and developments should be made considering the environmental factors as well. The selected area for the study is Rasta Peth a planned in grid iron pattern in the early 19th century. The aim was to study the development in dense areas of Pune (City Core Area) from environmental perspective. The methodological approach was to conduct survey to understand the micro-climate of the area which included measuring temperature, onsite vegetation and wind analysis, further the existing neighbourhood is simulated in Envi-MET V4.4.1 software to understand the existing built form of the neighbourhood, its effect on the users and the climate. From findings, it can be concluded that in a residential neighbourhood built form only cannot support the liveability of its residents. The traditional façade pattern gives a particular identity and character to the neighbourhood and sense of belonging as well.

"CURRENT NEED FOR TRANSFORMATION OF AN URBAN OPEN SPACES IN CASE OF NAGPUR CITY: URBAN HAPPINESS THROUGH ARCHITECTURE AND URBAN DESIGN FOR WELLBEING."

Ar. Nupur Chichkhede, Assistant Professor; Dr. D Y Patil College of Architecture, Akurdi, Pune, India

Urban happiness can be defined as a concept that gives a positive perception of a place to the people who live in it and which induces them to spend a long time there and to opt to live there again with the same experience. Quantifying subjective wellbeing or happiness has always been intriguing and with the advent of Gross National Happiness (GNH) index of Bhutan and World Happiness Report by UN, it has become all the way more of a global issue. Happiness is becoming a topic of conversation internationally as a potentially better measure of national progress. Nagpur, the 'Garden City of Maharashtra is having 18 per cent of its area under forests and plantations, the vacant lands are getting converted into layouts. There is no strict provision for incorporation of new open spaces, some of the open spaces which are properly maintained are overflowing while some are underutilized or dead. Therefore, this research paper leads to find direct policy making approach from literature studies and field survey of the existing scenario of parks and open spaces in Nagpur city, so, there is a need of policy making and design guideline approach for the urban happiness of the city.

"UP-GRADATION STRATEGIES FOR INFORMAL SETTLEMENTS USING STEEL FRAMED STRUCTURE."

Ar Shubhada Agrawal, Assistant Professor; SB Patil College of Architecture, Akurdi Pune; Ar Ranjeet Nerlekar, Principal Architect; RNA Associates, Sangli.

Bhubaneswar is a tier II city in India, which ranked at the topmost position under the Smart City Mission. It is one of the planned cities and has a high proportion of slums. Based on the survey of 161 households of Kalpana Labor Basti in ward no 56, there exists unauthorized settlement which is more than 15 years in the core area of the Bhubaneswar. This research case examines the community and the formation of settlement for proposing up-gradation strategies using repurposing and environment friendly built form. To study the root causes for the formation of such settlement we choose to work on a micro level to eliminate the defects at macro-level planning. Major government and tourist buildings like BMC, Odisha state Museum present around the site attracted us to study this site so that in the future this site module can become the toolkit for the up-gradation of similar conditions settlement. After the site identification SWOT analysis was done and proposals for up-gradation were worked out in three phases. This process includes surveys, interviews, participatory mapping with the help of slum dwellers, Urban Local Bodies, NGOs, and surrounding residents. The conclusion of the research is a proposal of the Design Strategies Using Reusable material and modules for incremental growth in the community to cater to future housing demands.

"IMPACT OF EXISTING GOVERNMENT POLICY ON REUSING BUILDING CONSTRUCTION RESOURCES AND SUGGESTIVE MODIFICATIONS FOR FUTURE DEVELOPMENT IN INDIAN CONTEXT."

Ar. Salman Aslam Chouhan, Assistant Professor; Aditya College of Architecture, Mumbai, India.

Construction resources include Materials for building construction, tools, equipment's, machinery, finished products, services, facilities, spaces and human resources. In India, as per the figures of Ministry of Environment, Forests and Climate Change, the annual estimate of construction and demolition waste is around 10-12 million tonnes. The Central Pollution Control Board in 2017 guidelines estimated the same to be around 25-30 million tonnes with almost negligible or very low resources been recycled or reused. A study by center for science and environment (CSE) revealed that India manages to recover or recycle only 1% of construction waste. With the fast pace of urbanization and growth predicted, construction industry needs policies which promotes strategies to reutilize, minimize or recycle the resources wasted in construction process for sustainable development. Government policies play a crucial role in it by controlling the development regulations. The paper studies existing Indian government policies on reusing of construction resource by policy analysis method. Through literature review, news articles, research papers it will evaluate impact of existing policy on current developments and reasons for its failure in promoting reusing or recycling of construction resources. The outcome of research post analysis will be to explore various suggestive strategies or modifications that can be adopted by policy makers which would be impactful in promotion of reusing or recycling construction resources for sustainable development.

"REPURPOSING CITY'S LIFELINE - A CASE OF CHENNAI'S WATERWAY."

Ar.Thulasi G, Assistant Professor; SRM School of Environment Architecture and Design, SRM, Chennai

Waterways are living ecosystem. They are lifelines of people closely linked with our culture and tradition. Buckingham canal, one of Chennai's important waterways which holds great historical significance has turned out to be forlorn and down-at-heel. Reviving the local community assets is a shared responsibility of the present and the future generations. The waterfront as a multi-use public gathering place is an opportunity for a city like Chennai to redefine itself and feel deeply connected by urban place making strategies. Place making is not a new concept. It's a collaborative process by which we can shape our public realm to maximize shared value, strengthen connection between people and places they share with. Cities used to be social places and not just spaces designed for people. This paper is an attempt to understand the issues of the canal and provide an insight into some of the problems in creating successful public spaces and inferring place making factors for a sustainable development of the canal.

"BUILDING LOST NARRATIVES : CASE OF STREETSCAPES IN AREA BASED DEVELOPMENT(ABD) THROUGH 'REPURPOSED FACADES'."

Ar. Trupti Biswas, Associate Professor; Aditya College of Architecture, Mumbai, India.

This research looks at understanding the associational value of built environment through study of aesthetic cognition of Streetscapes with mapping and analysis to arrive at strategies in retrofitting and redevelopment under Area Based Development ; to regulate the transformation of streetscapes in such projects where there is a threat of losing "streetscapes' narratives" through 'Repurposed Facade Based development' - reuse and repurpose of architectural material, style, scale and details to restore the cohesiveness of the existing street character thus maintaining authenticity of the existing context inspite of the modernization or upgradation of Area based development projects in Smart cities. Methodology proposed is by arriving at guidelines with prior Streetscape mapping through manual, survey of stakeholders and computational tools.
Outcome of Research : Re establish Façade's active role in the Uniqueness, Human Scale, Cohesiveness, Building of street character, Associational values of streets with high aesthetic cognition to overcome the current gap in such developments which poses threat to achieve a comprehensive profile of urban visual environments through Repurposed Façade material, architectural style, scale and details

"DO THE SURROUNDING CONDITIONS OF JOGGING TRACKS AFFECT TO THE ATTENTION? A CASE STUDY ON JOGGING TRACKS IN SUBURBAN COLOMBO."

M.Chamal Randika Fernando, Landscape Architecture student; University of Moratuwa, Sri Lanka.

Urbanization has brought half of the world's population into urban areas while transforming the way people live, work, travel and building network. Similarly, the urbanization made a significant impact on lifestyles in urban and sub-urban Sri Lanka. Jogging is found as one of the favourite physical activities among people in these areas. Unfortunately, the absence of proper design elements and surroundings of dedicated jogging tracks in Sri Lanka resulted in distracting joggers while jogging. Therefore, this study examines such design elements and surrounding factors and their impact on the attention of joggers in Sri Lanka. We select two jogging tracks in the capital of Sri Lanka, as our case studies. Further, we use online surveys and face to face interviews with joggers as data collection methods while triangulating data with experts' opinions from park managers and landscape architects in government authorities. Moreover, we gathered photographic data while observing tracks physically and using satellite images from online sources. The collected data is examined in both qualitative and quantitative methods to identify our results in which six factors emerged as most affecting factors to the level of attention of joggers. These six factors are increasing temperature, seeing amphibians in the surrounding, excessive traffic noise, vehicle smoke, dust particles in the atmosphere and level differences of the jogging track. Finally, we propose a set of recommendations for maintaining, restructuring, and developing jogging tracks in Sri Lanka in order to minimize the distractions of joggers.

"HABITABLE TRANSITION SHELTERS - IMPROVISING TRANSITION HOUSING IN DISASTER REHABILITATION."

Hadiya Jafar Ali, Undergraduate Student; Shynu Robert, Assistant Professor; TKM College of Engineering-Kollam, Kerala

Natural disasters affect an estimated number of 160 million people each year. Children, women, the elderly, and the differently-abled are the most vulnerable during disasters. Facilities for proper sanitation, personal and menstrual hygiene, supporting pregnant and lactating mothers, medical and psychological support are often neglected during the initial recovery phase. Transition shelters have been incorporated in rehabilitation programs worldwide, to successfully aid in post-disaster recovery. This paper systematically analyses vulnerable sections and their needs, the current guidelines and practices adopted, and the habitability of shelters provided in Kerala after the 2018 floods, and similar national and international initiatives. The potential and need for transition shelters in improving the living conditions of the refugees are analyzed. Gaps in implemented projects and planning for identified vulnerable communities are studied. Results indicate that planning, and proper execution of the shelters, using locally available resources, and reusable materials, results in faster and better recovery by providing the victims with a base to start their lives afresh. Habitable transition shelters can ensure the safety and privacy of the victims and effectively ease the process of rehabilitation.

"THE IMPACT OF STREET WALL ART IN CREATING URBAN SPATIAL IDENTITY: SPECIAL REFERENCE TO JAFFNA TOWN, SRI LANKA."

Kalaithasan Gowthaman, Undergraduate student of Honours degree of Bachelor of Landscape Architecture, Faculty of Architecture, University of Moratuwa, Sri Lanka

Jaffna city has unique recognition with its physical settings, socio-culture, and human behaviour patterns which is expressed in their lifestyle. Over time, the hierarchical pattern of the socio-culture and behavioural patterns have been represented through physical settings. It gets its impression with a traditional & religious features, social group, identity, beliefs, and norms. Within a short period, behaviour of people concerning the street wall art have changed in conflicting within the different contexts of the country and this is no different to Jaffna too. The appearance of street wall art makes a conflict in spatial recognition. Thus, there is a huge responsibility in finding the impact and reasons for this change and suggest a suitable solution for it. Place identity and social identity theories were used to form the theoretical framework and were carried to analyse the case study. There are direct and indirect influences of urban spatial identity which were measured in the Jaffna context. Most of the measurements proved that identity related factors have been included in street wall art to create an urban spatial identity. But the user perception was focused on an aesthetical manner where proper maintenance, selection of spaces, clarity of arts should be considered

"MANAGING CHANGE IN HISTORIC URBAN ENVIRONMENTS – A CASE STUDY OF MADURAI."

Ar.Shanthini M, Associate Professor; School of Environment Architecture & Design, SRMIST, Ramapuram, Chennai.

Madurai like most places across the globe is experiencing a rapidly increasing urban population associated with increased housing density. And this requires additional retail, commercial; transport and other infra structure to retain the cities as 'liveable'. Tracing the history reveals that Madurai is home of great heritage and history over 2600 years. Architecture has been undergoing a process of evolution throughout the successive stages of social development. Change in historic urban environments is inevitable, to preserve historic values does not mean we have to freeze the time and create a museum of that period. The key to the long term 'liveability' of our cities is to manage change through processes that provide us with such conservation solutions that are sustainable. The solution has to respect the values of historic heritage and support the kinds of societies that we wish to pass on our future generations. This paper describes steps being taken by the Madurai Municipal Corporation to promote integrated development plan of Madurai, while the author suggests the need to protect and promote cultural, historical, natural and religious significance of Madurai. The paper addresses core city's issues and potentials and puts forth solutions to direct Madurai towards "Sustainable Urbanization" through holistic approach. Finally the plan proposes a sustainable action process for protecting and promoting the heritage significance of the region. In Indian context one may explain that it includes the place where the city is built, the sacred geography underlying its physical fabric, tanks, temples, streets, gopurams etc.

"CHALLENGES OF A CITY WITH A HERITAGE CORE CASE STUDY: PUNE."

Ar. Mahesh Bangad, Assistant Professor; Prachi Surana, Student; Shreya Agarwal, Student; Dr. Bhanuben Nanavati College of Architecture, Pune.

Indian cities for over centuries have had a great history, a rich legacy of cultural and architectural heritage. These cities have stood the testimony of time, stayed true to their ethos in their historic cores. Pune is one such city with a recorded history of over 1000 years and plethora of Maratha architecture, culture and tradition, but in conflux of conserving the past and keeping pace with urbanization. With the advent of time, uncontrolled and insensitive developments, government negligence, conflicting land uses, encroachment by commercial establishments, non-contextual architecture, traffic and parking problems, the historic core of Pune seems as a fractured entity today. This paper thus aims at understanding the current scenario and the emerging concerns in the historic core of Pune city. Using survey techniques and analysis, the paper proposes a management framework that could help re-purpose the architecture in the city core. The objective of this paper is to identify areas of concern in the historic core of Pune (Tulsibaug area) and propose solutions for decongestions and explicate the character and the image of the historic core. This study could further also form a basis of creating management frameworks for several such cities across the country having rich built and cultural heritage.

"PLACE IDENTITY AND PLACE ATTACHMENT IN URBAN-LAGOON WATER LANDSCAPE, BATTICALOA, SRILANKA."

Subahithan Manickaretnam, Undergraduate, Bachelor of Landscape Architecture; Wasana De Silva, Senior Lecturer; Department of Architecture, University of Moratuwa, Srilanka

Batticaloa town, which has been evolved with the lagoon related activities, established a unique urban-lagoon water landscape in Batticaloa. The integrated relationship of people, place & urban-lagoon landscape is specific, and people have been celebrating the place throughout the past, reflecting sense of place and place attachment. Recently introduced new urban water parks are neglected by people raise the question of how people experience sense of place and place attachment in these new urban parks and how these contribute to the place identity of Batticaloa. The research aims to examine issues related to sense of place and place attachment in new urban parks Batticaloa. Research methodology applies case study approach; through a historical analysis it examines the relationship between lagoon waterfronts, people, activities, and the city landscape, focusing on place identity and place attachment in urban-lagoon landscape and evaluates current situation in new urban water parks. It employs informal interviews & discussions with people at selected case study areas and narrative analysis & content analysis scrutinize data. Threefold of place identity, concept of 'insideness' and place attachment as measuring tools of sense of place explain the case study. Findings and analysis indicate that people visiting these urban – lagoon water landscapes are satisfied with the proposed recreation activities; while their concern is about these places are on past memories and identity; abandonment of historic identities, activities, spiritual customs and beliefs on these places are possible causes for the less sense of place and neglecting the place.

"UNLEARNING WASTE, UPCYCLING THE REST"

Md. Mashuk Ul Alam, Undergraduate Student; Humayra Anan, Undergraduate Student; Bangladesh University of Engineering and Technology.

Cities have always offered abundance and variety of spaces and instrument to shape functional manifolds that people could hardly resist. But the unplanned growth pattern, unsustainable development strategies and individualistic approach in building design have transfigured this welcoming vibe into an undesired one. Substantial emergence of negative spaces, huge amount of construction and consumption junk and rapid functional disintegration are the consequences of this alteration. This study regards them as Urban Waste. The aim of this study is to investigate the prospects of urban infill through reducing these negative spaces by incorporating flexible and recyclable programs constructed reusing discarded materials. To achieve this, the aforementioned Urban Wastes are categorized depending on their individual characteristics. After that, from the collective interaction of space and function suitably conjugated with the material chart proper design dynamics are derived. These design dynamics provide direction for coping with recurring problems of rapid urban waste generation. The opportunities and scopes of turning the problem of "considered uselessness" into versatile utility is explored throughout the study. Practically, waste is something the use of which is yet to be learned. The findings of the study will aid in altering people's perception towards urban waste and stimulate a repurposing response toward unlearning the typical meaning of waste and deeming them as resource.

"ANALYSIS OF SHADING CONDITION IN THE STREETS OF ANCIENT VEDIC SETTLEMENTS USING PARAMETRIC TECHNIQUES."

Mohammad Tahajibul Hossain, Assistant Professor; Dr. Khandaker Shabbir Ahmed, Professor; Bangladesh University of Engineering and Technology (BUET)

Literary sources like Mānasāra and Mayamata Shilpashastras, Arthashastra, Samarangana Sutradhara and similar scriptures pertaining to Vedic period provide several categories of settlements according to their function and scale, the basic module of which are Gramas or the wards. These sources also suggest classifications of the Gramas by means of settlement patterns comprising urban blocks and streets of different configurations. The categories of streets, namely Brahmavithi, Mahakalavithi, Rajapatha, Vamanapatha etc. are also found based on their width, orientation and functions. The heights of the urban blocks are also being suggested and the height-to-width ratio for a specific street category varies for different ward patterns. This paper aims to create conjectural three-dimensional parametric models of selected Gramas based on the codes of the literary sources and determine the shading condition in the streets by means of simulation techniques and associate the results in terms of tropism, a behavioural determinant of thermal comfort in outdoor spaces. The paper further analyses the shading percentage of street surfaces for 3 critical days of the year against the height-to-width ratio of the streets, the activity pattern suggested in the codes and evaluates the relative performances of the ward patterns.

"REPURPOSING BUILT SPACES THROUGH PROPERTY GUARDIANSHIP : EXPLORING THE POTENTIAL OF BUILDINGS AWAITING DEMOLITION FOR TEMPORARY HOUSING."

Ar. Neethu Mathew, Assistant Professor; Aditya College of Architecture, Mumbai, India.

In this paper, we examine the potential behind the concept of property guardianship, as a temporary solution to the housing crisis, and in the fullness of time, repurposing vacant or underused buildings awaiting demolition. The notion of habitation in India's urban context falls under the repulsive binary of formal housing and precarious informal settlements. The former represents the degree of urbanization and the latter, bears the brunt of redevelopment, only to emerge as a certain housing type that contradicts affordability and housing demand. In most post-colonial and post-industrial cities, redevelopment and land repurposing has evolved as a standardized procedure, where sub-optimal buildings (say formerly public, residential, institutional, or industrial), with large footprints, remain unoccupied for a relatively long time, bound by ownership, maintenance, and land-use constraints. A sustainable solution lies in repurposing these vacant buildings rather than retaining them purposelessly till demolition and rebuilding. The concept of property guardianship is rather antithetical, where the guardians or tenants are in the comfort of sustainable social and economic expediency, but also being vulnerable towards the apprehensions of homelessness and temporality. With certain policy reforms, the fundamental idea of housing can be restructured, away from the binary of formality and informality.

"URBAN PUBLIC SPACE: EXPLORING TRANSFORMATIONS IN A CULTURAL NEIGHBOURHOOD IN DELHI."

Ar. Nidhi Sachdeva, Phd Scholar; DR. QAMAR IRSHAD, Associate Professor; Jamia Millia Islamia University; Ar. Charu Jain, Associate Professor Delhi Technical Campus

ndia is one of the most culturally and traditionally rich country in the world, with diverse religions and communities. With increased technological advancements, there has been a complete transformation of urban fabric of Indian cities and these changes are repetitive. Cities have become hub of multicultural expressions, incorporating not just the physical fabric but also the social and spatial fabric. Public spaces change into extraordinary space during temporal activities like festival days due to no specified spaces in the built environment for such festivities. Festivals are the occasion when people occupy space in the city in a different way than the regular condition. Traditionally celebrations were at home within the family, but now it has become a grand experience, moving out of individual homes and coming onto the public spaces in the city. This paper investigates one of the neighbourhoods of New Delhi, Chittaranjan Park, and explores the transformation of this space during its popular festival, Durga Puja. The understanding of the neighbourhood through its varied activities in its market spaces, religious centres, community centres etc which gives the whole space a very lively character, are an essential part of study. Thus, the study exemplifies the significance of these temporal public spaces, in escalating social interactions and cultural consciousness.

"FINDING WORKABLE SOLUTIONS TO THE ISSUES ADVERSELY AFFECTING THE CONSERVATION LED REHABILITATION OF BUILT CULTURAL HERITAGE IN INDIA."

Neha Tambe, Conservation Architect and Urban Planner; Prashant Banerjee, Conservation Architect; Aga Khan Trust for Culture

The primary postulation of this paper is to examine existing urban planning and design strategies and policies in relation to conservation and rehabilitation of residential and commercial built heritage by critical examination of existing case studies in India. An analysis of three case studies – Nizamuddin Basti - Urban Renewal Project led by AKTC, Shekhawati and Pune's historic core, will help achieve the objective of how social, economic and political conditions affect the state of built fabric and the resident communities living in the vicinity. To validate a case study a "success," certain criteria for evaluation need to be introduced. Based on three case studies, the evaluation criteria will be composed of certain common themes, which are important indicators of positive change, with a few germane variations, which may or may not have an inadvertent effect on the outcome. This paper will carry out detailed comparative analysis of current Indian government policies against successful urban planning, design strategies and policies adopted globally, highlighting the parameters of successful policies such as tax incentives and the means to successfully implement them in residential and commercial built heritage conservation in India. Traditionally, in the Indian context, conservation and rehabilitation of major built heritage in India has been approached from an antiquarian and archaeological point of view whereas residential and commercial built heritage remains neglected. This built heritage stock has a huge capacity to generate financial benefits to the owners while already contributing to the social identity of the place. Finally, the paper shall also highlight the negative ramifications of demolition of such built heritage to make way for new buildings both environmentally as well as from a socio-economic standpoint.

"DEFINING NEW MEANINGS OF URBAN ROAD JUNCTIONS IN THE CONTEXT OF CONTEMPORARY INDIAN CITIES."

Prof. Rikta Desai, Professor; AAERT & The SSB Ltd, Faculty of Architecture, SCET, Surat

A very obvious and apparent image of urban roads of contemporary Indian cities is always a scene of big chaos and congestion with people and vehicles moving haphazardly and restlessly. These roads not only define the directionality but also helps in establishing the identity, image and culture of a place or a city. It becomes a matter of concern to achieve the balance between utilitarian, perceptual and aesthetical purpose of urban Roads and junctions. The inquiry of this paper is to understand and analyse the issues and challenges of urban road junctions in Indian cities and to identify the roles they can perform apart from being hubs of automobiles and controller of traffic movement. The study aims to present the role of urban design interventions and emphasises the need for appropriate infrastructure that can redefine urban road junctions as potential urban space meant more for socio-cultural functions rather than points of conflicts, confusion and mental stress. The scope of the study is limited to the identification of issues more commonly observed in contemporary Indian cities and with the help of urban design theories and study of best practices in the field of urban design, intents to provide for general recommendations that can be applied in accordance with these typical conditions.

"WATER SENSITIVE URBAN DESIGN IN THE CONTEXT OF BENGALURU METROPOLITAN REGION."

Reshmi M K, Associate Professor; Vaseem Anjum Sheriff, Professor; BMS College of Architecture Bangalore, India.

Bengaluru city has been facing increasing water shortage in the recent years as a consequence to rapid urbanization and subsequent population increase. Traditionally the kere system was the source of water to Bengaluru. Most of these tanks have gone dry or have been filled in during urban development. The remaining water bodies have become waste and sewage dumps. The groundwater table in the city has been steadily declining and the city is heading towards severe water crisis. In this scenario it becomes important to devise ways to augment the existing water resources and come up with an efficient water management system utilizing rainwater and existing keres and incorporate it in the city planning process itself. By implementing guidelines for efficient water management in the urban design process it would be possible to create settlements which are self-sustaining, and which cause minimum impact on the environment. This paper will study the existing water systems in Bangalore and look at similar case studies and approaches from across the world and devise design strategies ad guidelines for efficient urban water management by tapping rainwater and subsequent surface runoff. Managing water resources would resolve issues of urban flooding and water scarcity in the city.

"CONSERVATION OF TRADITIONAL WATER MANAGEMENT SYSTEMS FOR CLIMATE CHANGE ADAPTATION: A CASE OF GWALIOR CITY, MADHYA PRADESH (INDIA)."

Ar. Richa Mishra, Assistant Professor, Dept. of Architecture, M.I.T.S Gwalior; Ar. Harshita Mishra, Architect and Environmental Planner.

In present day context, the growing water demands and its crisis is emerging as a major challenge across the globe. The climate change impact on the other hand also contributes to water scarcity and will lead to more serious challenges in near future. In the current scenario, due to the continuous negligence of traditional water conservation technique the heritage structures like Baolis and Taals have lost their functional values and also its architectural importance. The Gwalior city in north Madhya Pradesh has many traditional water conservation structures. These structures have earlier gained social, cultural, sacred and environmental importance and were preserved in some cases by the local community. But with time the knowledge of such traditional practices got faded with the introduction of alternative techniques. The existing traditional water harvesting systems may contribute as adaptation for sustainable communities by achieving SDG-6&11. The heritage once identified and conserved will help to restore the historic urban landscape of the city. This paper aims to establish the relationship between the traditional knowledge systems and the challenges related to water availability in the city through identification of existing historical water management systems and its revival.

"REPURPOSING THE PUROCESS OF REHABILITATION AND RESETTLEMENT POLICY - A CASE OF MMRDA."

Ar. Rita Nayak, Principal; Ar. Neethu Mathew, Assistant Professor; Aditya College of Architecture, Mumbai, India.

This paper attempts to study the existing tenement bank in the fringe areas of MMR that houses marginalised communities who are relocated under the R&R policy from the urban core for public projects. R & R as a process has directed the sprawl of the city, by introducing new tenement growth centres in well connected but physically distant outskirts. Essentially, communities are taken away from their organically networked spaces and means of sustenance to be relocated to a newly planned generic built environment that only solves the problem of shelters devoid of any opportunity for social, cultural and economic networking that they enjoyed. This process is heavily deprecated, the existing processes result in gentrification, detachment and loss of identity , insecurity, loss of sense of belonging, loss of healthy cultural differences and similarities with uncertain economic systems and finally, the micro and macro networks that otherwise organically holds them together, this paper attempts to repurpose the process of R&R which is favourable to the communities, proposes that flexibility in space design and planning, and an open approach to the understanding of spatial characters, built entities, unbuilt spaces etc. will accommodate communities from all backgrounds.

"ACHIEVING REPURPOSE IN ARCHITECTURE THROUGH URBAN REGENERATION, CASE OF MOKPO, SOUTH KOREA."

Ritu G Deshmukh, Professor; Bhartiya Vidyapeeth College of Architecture, Navi Mumbai, India

Mokpo is a Historically and Culturally significant part of Korean History significant part of South Korean history even if it is a history of Japanese occupation which many of the current generation does not wish to associate with.

The Earlier concept of Korean old Cities being replaced by New Modern Development is now being challenged and lot of Korean Old Cities are seeing this attempt to address the City issues through constructive Urban Regeneration through understanding the Social Fabric, Physical Form, Economic needs of the old area and Cultural Significance of the same.

The Workshop gave an insight to the students and Mentors of various Korean, French and Indian Mentors the opportunity to guide the students to learn about this Unique Colonial Settlement and propose some ideas for Repurposing Architecture through Urban Regeneration and making use of the existing resources of the Historic Settlement.

"INCLUSION OF URBAN MORPHOLOGY IN PLANNING PROCESSES: CASE OF DELHI."

Ar.Samreen Sultan, PhD scholar; Dr. Qamar Irshad, Associate Professor ; Jamia Millia Islamia, New Delhi, India

Delhi is experiencing a very distinct form of an unprecedented urbanization. As changes in the socio-physical fabric keep happening overtime, planners are not able to gauge the pace of urbanization and morphological transformation which is evident in the latest master plans that have come up (MPD 2021). For instance, in some areas single storied buildings has been converted to a multi storied structure, hundreds of commercial areas defy the Master Plan guidelines and yet no significant research from the authorities have been able to decode the 'backend forces' of the evident morphological change in a systemic/methodical manner. There are many failures in the current scenario where violation in the masterplan are often not investigated thoroughly from a research perspective. The issue authors are focussing upon is not this conversion, but the non-comprehension of the reasons behind the change into the planning process. Therefore, the aim of the research is to examine the issues and intricacies of integrating aspects of urban morphology in urban planning process and develop a comprehensive planning framework that will give due importance to urban formations and transformation processes. The authors have argued that an interdisciplinary understanding of urban morphological process and using it for city planning process can lead to better area plans at local, zonal and city levels. Therefore, it is essential to 'disentangle' as well as 'delimit' morphology from its conventional architectural attributes. In other words, to tease out the myriad layers which are the key drivers for socio economic change and new forms of informal, hideous, latent and discreet urbanities.

"ARCHITECTURE FOR THE DISPLACED: A STUDY ON ALTERNATIVE SOLUTION TO THE REFUGEE CRISIS."

Shreya M. Kejriwal, Student; Tejas C. Patel, Professor; AAERT & The SSB, Faculty of Architecture, SCET, Surat.

For decades' camps are seen as 'temporary spaces' for people in need of humanitarian assistance. They are often located far from the local communities and city centres in poor conditions. There has been a significant rise in the number of camps and people needing assistance. 2012 saw a steep rise in the number of refugees due to displacement of millions of Syrian's and other groups in Africa. These camps face a number of issues like resource scarcity, security concerns and financial constraints to name a few. Various camp planners and designers have criticized the traditional approach of camp planning and have advocated the need for a more efficient, connected and a stable approach to the crisis. The objective of the study is to identify a refined approach to refugee camp design and development that is comprehensive and embodies their daily practices of living, forming relationships and constructing identities, keeping in mind the infrastructure, extent of the stay and environment around the camp. This is done by reviewing the academic as well as practiced approach to camp design which will determine the broad parameters of the approach. The parameters are further studied through multi-site case studies to determine the implications of the parameters against the current model.

"SPATIAL FORMATION OF TEMPLE TOWNS OF INDIA: A STUDY OF BUILT ENVIRONMENT & URBAN SPACES."

Siddhi T. Matliwala, Student; Tejas C. Patel, Professor; AAERT & The SSB, Faculty of Architecture, SCET, Surat..

Indian civilization is one of the oldest civilization in the world with all spiritual knowledge and wisdom. But the religious heritage is not adequately explored especially in case of temple towns. These towns were successfully designed to fulfill the need, demand and aspirations of the society. These Temple towns are the prestige examples for the living heritage which ties the past with the present. They shows the higher level of synthesis with the spatial organization and functioning of the spaces. The built fabric of these towns are the metaphysical interpretation of spaces which has the higher role in building the town. The built forms guided through social aspects collectively with occasion forms the fundamental structuring of the temple towns. The paper addresses the basic parameters that supports the spatial formation of temple towns, its characteristics, the functionality, its spatial dynamics and the importance of movement in Temple towns. The study is based on the case studies of north-Indian temple towns Omkareshwar, Varanasi and Dwarka selected as per development stages like non-developed, under development and developed respectively. The observation are made with the help of literature study and survey. Further, from which future guidelines and concluding parameters are formulated that may help to address any heritage town in the context of India.

"RE-PURPOSING AVAILABLE BUILDING STOCK IN CITY CORES- POSSIBLE APPROACHES IN INDIAN CITIES."

Sindhushree R Prasad, Assistant Professor; BMS College of Architecture,Bangalore.

Cities are shaped by processes and factors like time, technological advancements, political climate. Every significant phase in the life of a city leaves behind significant tell-tales in the form of its buildings. The city keeps re-inventing itself but the buildings remain, occupying major real estate but neglected and dilapidated due to loss in purpose, infrastructure stress and general apathy. Leading to shortage of quality space in the core areas, congestion, illegal occupancies, and safety issues. Another concern is that, however neglected or irrelevant these buildings might be, they are still important repositories of building material and technology and have a very important role to play in the image of the place along with immense cultural and heritage values. This paper examines the policies and legislative framework regarding Built heritage while stressing on the need for repurposing and retro fitting to be parts of development policies of the future. To examine the current situation, instances are studied from the cities of Mysore and Bangalore and then a comparative analysis is drawn with respect to better urban practices globally. The paper concludes with policy suggestions at various levels of governance with an increased stress on the possible role at ULB level.

"DESIGN APPROACH TO REPURPOSING URBAN SPRAWL: CONTEXT STUDY BENGALURU."

Sudha Kumari, Associate Prof; Surekha Ramineni, Associate Prof; Aruna Gopal, Assistant Prof.; School of Architecture, RIT, Bangalore

This paper aims to discuss a design approach focussing on sustainable practices which must become an integral part of design process for addressing urban sprawl especially in cities like Bengaluru, has witnessed an urban growth rate of 46.68 % (as of 2013). This rate of change is important to note because it reduces the time to plan for sustainable city growth and execute a design strategy that can manage the urbanisation. It is the balance between urban planning and urban growth that can mitigate urban 'sprawl'. For a sustainable intervention at a size of urban sprawl, it is important to rethink and repurpose these urban built environments so that they can come closer to a balanced and efficient dependence on resources, both physical and natural. This is a post facto measure and the design approach is hence inverted. The proposed design strategy explores multiple layers for design thinking in context of urban sprawl, repurposing the built environment. The process has been built by intensively studying the site and surveying with the residents of the area in urban built environment. The purpose is to demonstrate the application of design process for a sustainable practice along the south-west corridor of Bengaluru city.

"CHARACTERISTICS OF STREETSCAPE AFFECTING THE VISUAL COMFORT ON PRIVATE VEHICLE USERS DURING HEAVY TRAFFIC IN COLOMBO CITY."

C.C.G.G. Thusyanthan,Honours Degree of Bachelor of Landscape Architecture, Department of Architecture, University of Moratuwa,Sri Lanka.

Streets are a vital part of any city's public open space system. The existence and character of the streets play an immense role in influencing the overall quality and sociability of the city. Increasing the usage of private vehicles in developing countries has been one of the major challenges in terms of maintaining traffic flow and safety. Moreover, drivers tend to face a lot of psychological problems. The objective of the present study was to understand the impact of the street characteristics on private vehicle users during heavy traffic. The study also aims to analyse the possibilities to reduce the driver's psychological issues by making changes in the street landscape. The sample of the present study was the private vehicle users who are using these junctions. The findings revealed that the public library junction led to the high level of connectivity with the surrounding junction environment and lower level of stress compared to the William junction where the surrounding environment promoted a less connectivity and higher level of stress. It was proved throughout the comparative analysis. These findings can be used in the process of evolving the future street design proposals and enhance the quality of life

"PRESSURE ON LOW-INCOME COMMUNITIES DUE TO RE-ALLOCATION OF INNER-CITY LAND FOR FDI PROJECTS: A CASE STUDY OF SLAVE ISLAND NEIGHBORHOOD IN COLOMBO, SRI LANKA."

Vishva Herath, Lecturer; Ranith Perera,Professor; Jeeva Wijesundara, Senior Lecturer; School of Architecture - Sri Lanka Institute of Information Technology

Due to the rapid urban re-development that is underway in the central areas of Colombo, the lifestyles of resident communities and their related architectural patterns are subjected to irreversible change. Areas which developed as dense inner-city residential zones with attuned commercial activity and built environment, are now forced to change in an inexorable process where the land is repurposed for mega development projects. The Slave Island neighborhood in the heart of Colombo is such an area with residential communities established over a multitude of generations, and an architectural character unique to the area. At present, the community and the environment are under decline and being pushed into a few isolated pockets in the area due to the land being granted to high profile FDI projects. The primary aim of this research is to outline the current pressures imposed upon the local community and the built environment, by the urban repurposing carried out in Slave island. This study will focus on the following;

Ø What are the influences imposed upon the residents of the neighbourhood and their built environment due to the encroachment of the high-profile developments – carried out primarily by interviewing residents

Ø Establishing an outline of an inclusive development approach to repurpose the study location, benefiting the city economy as well as the existing community and their neighbourhood without marginalizing them, as an alternative approach

"AMELIORATING THE PROBLEM OF HOMELESSNESS – ANALYSING KERALA STATE GOVERNMENT HOUSING POLICY."

Fathima Siraj, Shynu Robert; Department Of Architecture, Tkm College Of Engineering, Kollam

Homelessness has been a persisting problem that is adversely affecting India. In response to this, several housing schemes and policies have been proposed and adopted in the country throughout its independent governance but none seem to be able to address the issue properly. Hence there arises the need to search and understand the intervention of the state in coming forth with solutions to ameliorate the condition. Kerala is a rapidly growing state which is also known for its approach on housing development. The state currently shows profound rates of success in providing housing and livelihood opportunities for the poor and homeless. This study focuses on the policies adopted by the state to provide for the economically weaker section of the society and the aspects that lead to the success of these schemes. A systematic analysis is done in order to understand the efficacy of the different policies adopted by the state in the quest of achieving "housing for all". The study tries to reveal the housing statistics based on policies in order to project the current status. It shows that effective communal participation, affordable housing techniques, coordination between local self - governments and the state government have resulted in the productive approach in addressing the issue of homelessness.

"IMPACT OF UNPLANNED SETTLEMENT ON THE ECO SENSITIVE AREAS OF KARKALA."

Ar. Deeksha, Asst. Professor; Prof. Dr. Nandineni RamaDevi; Ar. Uzma Khan; Srinivas School of Architecture

Karkala present in the foothill of Western Ghats, which is a major eco sensitive hotspot of India is facing a major threat due to Human invasion. Rapid and unplanned expansion of a city into its eco-sensitive areas like hills, wetlands, and forests is becoming a major concern, particularly in developing countries. Understanding the process and causes of unplanned urban expansion is of paramount importance for framing sustainable urban development policies. Around 6335 ha of land present in karkala is recognized as Eco sensitive areas (partially village) by Ministry of Environment and Forest (MoEF), India. The first half of the paper is trying to address the necessity of eco sensitive zones, the benefits and the current threats that are occurring in those areas. It is followed by the understanding of eco sensitive zones through maps and research works. The paper is concluded by talking about the present threats that present in karkala and how to overcome those threats, and what can be carried forward from this paper.

"SOLID WASTE IS IT A TRASH OR A VALUE-ABLE RESOURCE."

Prof. Alpa Pandya, Assistant Professor, Faculty of Architecture, Sarvajanik College of Engineering and Technology, Surat, Gujarat, India

Managing solid waste is one of biggest challenges of the urban areas, ranging from mega-cities to towns and villages. Managing this solid waste is the most challenging problems for every city managers and authorities. The quality of waste management services is a good indicator of a city's governance, If a city is dirty, the local administration may be considered ineffective or its residents may be accused of littering it. The authorities spend a substantial proportion of their available recurrent budget on managing this solid waste from all the units that is from collection transferring and then treating it as all this put lot of human resource as well as lot of cash flow into it. This particular paper aims to capture waste management trends and draws attention to the importance of waste management, especially regarding its role at an individual level that is at a unit level then at a cluster level then at a neighbourhood level and lastly at a city level for leading Clean India. Waste should be handled from a unit that is its segregation and its composting should a mandatory clause for all the citizens. To fulfil this it is determined the target an individual awareness with training campaigns, penalty etc. So this paper has selected examples of national and international case studies to showcase the good work that is being done on solid waste management by cities around the world, large and smaller, rich and poorer.

"PASSIVE TECHNIQUES, THERMAL COMFORT AND RESOURCE MANAGEMENT IN A TRADITIONAL SETTLEMENT - CASE OF CHAMPAGUDA NEAR ARAKU."

Jhannupriyaa, Assistant Professor; Deepalakshmi, Associate Professor; Department of Architecture; Sathyabama Institute of Science & Technology, Chennai, India

Resource management in the current scenario is utilization of resources to the maximum efficiency. In the process of achieving efficiency we shouldn't compromise the comfort of the individuals. To understand sustainable principles where limitation of resources play a vital role this rural settlement near Araku valley, India is identified and studied. This paper analyses the passive design strategies developed by the local people which is offering rational design solutions to human comfort. With an intention to figure out the 'sensible utilization' of resources a quantitative analysis was carried out in this settlement near Araku which has a moderate climate. Using calibrated digital instruments a field study was conducted during July to register the indoor thermal comfort between traditional and modern building. Data collection was done for selected dwelling units based on the materials used for construction. Findings from the comparative study exhibit the wise use of resources in traditional construction to achieve thermal comfort in comparison with modern buildings. This paper also demonstrates the distinct ways available vernacular materials are used in their dwelling units to achieve thermal comfort efficiently.

"NATURAL RESOURCE MANAGEMENT FOR CLIMATE CHANGE ADAPTATION: A CASE OF KILLARI IN MAHARASHTRA."

Ar. Prasanna Bhangdia, PG Student; MNIT Jaipur, Rajasthan

Human Activities contributes to the Climate-Change. Urban activities being the major contributors of GHG emission need attention. In this context, Physical Planners play an important role in minimizing ill effects of Climate-Change. There are various stages of interventions, direct or indirect, which needs to be adopted as per the situation. Management of Natural Resources is one of them. From literature review it was found that there are Two important ways through which physical planners can contribute in the Natural Resource Management viz. Land Based Mitigation Policies and Effective use of Existing Natural Resources. This research attempts to identify the suitable ways for the management of natural resources in order to adapt to the climate change for Killari village in Latur, Maharashtra. To achieve the objectives of the research work various maps; such as Natural drainage map, Drainage density map and NDWI map; were prepared on the GIS for the study area. Based on that suitable locations were identified for the agriculture activity, ground water recharge, forests and upcoming development in the village. Finally some policies were also recommended for the reduction in the Anthropogenic heat emission and protection of key components of existing ecosystem for the study area.

"RECYCLING WASTEWATER AND METALS THROUGH ECOLOGICAL LANDSCAPE AT KALAMBOLI, NAVI MUMBAI."

Supriya Shekhar Tendle, UG Student; Aditya College of Architecture, Mumbai.

The Kasardi River receives heavy pollution load from nearby Taloja industrial area, which is one of the most rapidly developing and greatly polluted industrial belts of Navi Mumbai. The objective is to create a balance in the damaged ecology by recycling the pollutant waste products as treated raw materials; thus, reducing pressure on the natural resources for generating the raw materials and the industrial waste is minimized. The two systems involved in the methodology are Recycling of wastewater for the ecological revival, and recovery of pollutant copper metal from the wastewater. Solvent Extraction and Electrowinning are the methods incorporated for gaining high grade copper cathode sheets. Formation of riparian (streamside) forests act as living natural filters that intercept sediments, absorb, and store excess nutrients, and transform and remediate the effects of many water contaminants and pollutants carried in runoff. Phytoremediation, which uses plants to decontaminate wastewater removes the pollutant metals, it is further sent to an effluent treatment plant (ETP) for removal of more pollutants and setting the pH required for Reverse Osmosis system and water deionization. Hence, the contaminated river water becomes fit for domestic use and copper is extracted which will be exported as raw materials to industries.

"LANDSCAPE PERCEPTION AND APPRECIATION OF WATERFRONTS: A CASE STUDY OF WATERFRONTS IN MULLAITIVU."

Sriramachandran Laypranavan, Undergraduate Student; Dr. Shaleeni Coorey, Professor; University of Moratuwa, Sri Lanka.

The development of Waterfronts and the people's knowledge about designing waterfronts is a lack in the Northern part of Sri Lanka. This study mostly focuses on the people's knowledge, their perception and appreciation towards waterfronts, and their efficiency in using the waterfront in the study area. Many water resources are in inactive status in Mullaitivu. Due to the vast extent and similar character to other water resources, Vavunikulam tank was selected as the study area. The preliminary studies stated that people's interaction with the waterfronts is attached to domestic and agricultural usages. Factors that influence landscape perception were identified, and related data were collected. Mix method has been used for data collection and analysis. Respondents were selected due to their interaction with the area. Data also collected by interviewing local people during the data gathering process. From the collected data, some information was presented quantitatively through graphs and charts, and other information was presented in a qualitative narrative manner. Their perception and preferences were analysed through a gathering satisfaction level in selected factors. The perception and preferences of people, their efficiency in using the tank, and their knowledge towards the Vavunikulam tank have been analysed and stated through the conclusion.

"SUSTAINABLE LIVING THROUGH TRADITIONAL PRACTICES."

Ar. Gayatri Sorte, Assistant Professor; Aditya College of Architecture, Mumbai

The impacts of urbanization are reflected on our aspirations, land cover, lifestyle (clothing and food) natural habitats, biodiversity and the ecosystem services that hold up human well-being. People from a small village named Hateri in Jawhar live a sustainable lifestyle. Since they are intrinsically dependent on the forest for their livelihood, they have an inherent respect for the forest and do not treat it only as a natural resource but recognize the larger local environment as a biologically diverse habitat shared by various species including human beings and even revere it as a higher spiritual entity that cares and provides. For example, the vernacular housing technologies adopted and still practiced by the communities in Hateri lead to very less or almost no carbon footprint. Furthermore, their consumption patterns are also cyclical and replenish the natural resources that are extracted from the environment that is their immediate surrounding and lies within a proximity of not more than 10 kms. The extent of extraction is also need driven and not greed driven. The purpose of this paper is to explore the relevance of their sustainable lifestyle as a model of traditional systems of resource management that demonstrate sustainable existence that can be adopted for other rural and urban communities.

"ROLE OF AWARENESS IN PUBLIC PARTICIPATION TOWARDS SOLID WASTE MANAGEMENT."

Himanshi srivastava, M-Arch; Jamia Millia Islamia, Delhi.

One of the major environmental challenges in India is associated with waste generation is its improper segregation, and disposal. Solid Waste Management Rules (SWM), 2016 clearly state that waste generators should segregate their waste before it is collected; even though most households in India continue to mix waste while disposing. For successful development of any solid waste management, community participation is essential for sustainability. The five R's of Waste management i.e. Refuse, Reduce, Reuse, Repurpose, Recycle offer tremendous opportunities for household and communities to reduce environment contamination caused by solid waste. The present research work is aimed at investigating role of awareness in changing perception and practice of households towards solid waste management and to find out what are the barriers, predictors and tools in promoting public participation in solid waste management. The study was undertaken in residential society of GH-7, Crossing Republik, Ghaziabad. The primary data were collected from a sample of 30 respondents using a structured questionnaire. This study conclude awareness programs focused on information gain are successful in providing the basic knowledge but to change the particular behaviour or habits specific targeted programs should be designed after complete research and analysis of data.

"DOCUMENTATION OF HERITAGE LANDMARKS THROUGH RESPONSIBLE COLLECTION MANAGEMENT."

Ar. Sameer Sultan,

Both tangible and intangible resources of heritage are memoirs of individuals and settlements.governmental and local efforts are made to preserve them.Responsible documentation management which is insured through recognition,protection and maintanence is a way to conserve heritage for interpretation and development.This task becomes strenous when these procedures are conducted under the conventional means of substantiation, which necessitates experimentation of new and advanced methods to ease the authentication procedures for those resources. The Kaisarbagh haveli in Mahmoodabad,Lucknow used to be the abode of the last Nawab of Awadh, Wajid Ali Shah. Now, it is in a ramshackle condition due to negligence of the authorities concerned. It still bears memories of the bygone times in its intricate Mughal architecture. This palace has not been maintained well despite its heritage value. This goes for so many other places of historical significance. The haveli is a significant part of Lucknow's history because it is a standing symbol of the Mahmoudabad dynasty. There has been a proposal to turn 3/4th of the haveli into a banquet hotel. The aim of this study is to fabricate awareness about the conservation of such heritage landmarks through means of responsible collection management by taking the example of Kaisarbagh haveli.

"LCA - TOOLS TO ASSESS THE ENVIRONMENTAL IMPACT ON EARLY-STAGE BUILDING DESIGNS."

Ar.Urvashi Purohit, Assistant Professor; Ar. Varsha Swar, Assistant Professor; Ar. Jwalant Dave, Assistant Professor; Aditya College of Architecture, Mumbai.

The Life Cycle Assessment (LCA) is a cradle-to-grave or cradle-to-cradle analysis technique which is a method for calculating the environmental impact of a product or service. It addresses the growing concern about the direct and indirect environmental impact on the buildings during their lifetime. Design decisions opted during early stages of a building's design determine its environmental impact. However, architects need to make many decisions during these stages and typically lack insight on which decisions are most significant to such impact. As a result, architects often defer decisions to later stages of the design process. Life-cycle assessment (LCA) can be used to enable better early stage decision-making by providing feedback on the environmental impacts of design choices. This paper presents a case study for applying LCA to early stage decision-making to take informed decisions on the environmental impact of the design. The study will entail the parallel assessment of a standard dwelling unit constructed using local materials & a framed RCC structure, within hot & dry climatic zone. Sample study is located in Jodhpur, Rajasthan. The research indicates that the inclusion of LCA assessment can aid in the building design process by highlighting those early stage decisions that have significant impact on environment.

"RE-ARCHITECTURE THROUGH ADAPTIVE REUSE - AN APPROACH FOR DESIGNING SUSTAINABLE HERITAGE."

Ankita Bajpai, Freelance Architect, Educator

Sustainable Architecture is no more a choice, but instead it is emerging to become a requisite part of the current design and construction practices. But we are so much involved into the sustainable practices that somewhere neglecting the buildings which are already built through centuries. The building that reflect a city's character, origin of our cultural values, define the architectural character of the city, need to be sustained. Yes the heritage buildings should be focused equally, as it is not only about the structure, but all the associated activities. The historic built environment is a finite and non- renewable resource , and like any other environmental resource, it needs sustaining for the welfare of future generations. The emphasis is not only on the built heritage, but also on the indigenous artistic skills and practices which, if not checked for sustainability, shall fade. Hence Adaptive reuse should be adopted. This paper aims to retain and reuse significant historic fabric and harmoniously unite it with the new built and open spaces. To achieve this aim a research strategy is designed to meet the major four objectives: First literature related to sustainable development, adaptive reuse is reviewed. Second, identify the dead heritage zones and study about the gradual changes from past to present. Third: to preserve and reuse the existing building and propose revitalization of heritage precincts. Fourth: to use the surrounding areas more effectively that benefits the local people providing employment, recreational spaces and art galleries. Finally, research conclusions are traced and few recommendations useful for professionals following practice of adaptive reuse of historic buildings are proposed.

"ARCHITECTURE - A HEALING ART: PROBING THE THERAPEUTIC AND HEALING POWER OF ARCHITECTURE."

Kavya Panchal, UG Student; Tejas patel, Faculty; Sarvajanik college of engineering and technology, surat

A building is not just a mere structure but a space that effectively addresses the five senses. Vegetation, flowers, stone, mud, water with sensitively design building may address all five senses. Spaces are good mediums for affecting emotions. In places where intense emotions run high, materials, sounds, smells, light, and color have an enormous influence on how people perceive themselves and cope with their situations. The research explores the relationship between spatial environments and its reactions on the body that enable healing and answers how architecture can be helpful in healing souls and affect their well-being. For the purpose several healing spaces reviewed and impact of architectural elements and its interventions on the users analyzed. At the same time design and planning interventions by architect or designer which triggers human psychology and augments their holistic healing also observed. This investigation may provide conclusive statements and key design guidelines, which are crucial in space making concepts for healing architecture. The key findings would focus on ways the spaces affect human psychology and triggers mind for self-healing that is less dependent on external force

"PARKING LOTS AS PUBLIC SPACES – THE CASE OF ECO PARK, KOLKATA."

Suganya Law, Assistant Professor, Amity School of Architecture and Planning, Amity University Kolkata, India

A place like Eco park located in New Town Kolkata, West Bengal, draws thousands of visitors from all around the city and beyond during weekends and lakhs of visitors during public holidays since its opening in 2012. While this oasis serves a larger crowd from far-flung places, it also brings in automobiles along with them and two large parking lots are designated in the outer edges of the park to accommodate vehicles. This study explores the opportunity of connecting immediate neighbours that has both apartment dwellers and more agricultural villages, all within a radius of 3 kilometres of Eco park by utilising the larger parking lot in south side. This research takes a close look at the 10-acre paved parking lot as a potential community gathering space for diverse activities and focuses specifically on the possibility of weekly markets during park's closed hours. Scholarly articles were reviewed to learn the benefits of community marketplace that foster interaction and inclusiveness in a society, advantages of direct markets connecting the producers and consumers and value of land in parking lots. To explore the feasibility, stakeholders like apartment residents, farmers and artisans from nearby villages and government officials were interviewed to understand the mindset and likelihood on visiting, and the responses are weighed-in the discussion section. The concept of weekly haats and bazaars is not new in India, especially in Kolkata, where numerous pockets take different avatars during specific days to sell specialised wares.

"REPURPOSING THE POTENTIAL OF LANDSCAPE TO ACHIEVE SUSTAINABILITY GOALS."

Ar. Manali Rane, Assistant Professor; Aditya College of Architecture, Mumbai

The holistic landscape approach and planning are indispensable when it comes to creating a conducive and responsive environment for development. In the last three decades, India a country with a diverse palette of geographical, ecological, geological, and climatic features, has witnessed a pronounced role of green rating systems such as LEED & GRIHA. These systems are backbones of sustainable development goals which comprise a set of criteria with various parameters related to design, construction and operation of a building, to be established as 'green'. Lately, green building certification has evolved to become a marketing strategy to promote a larger brand, product, or as competition to match global standards of development. As a result, this has driven a wedge between the core ideology of sustainability, ecology, environment, and climate. This paper aims to examine the potential of landscape planning, not only as a checklist to structured rating systems but also in achieving sustainability goals in the built environment as well as maintaining a balance in micro to macro ecological footprint. The research methodology will include different case studies of green buildings under various green rating systems where landscape has been treated as an integral part of the project, and not just as a token element for rating.

"REPURPOSING THE ELEMENTS OF AN OLD BUILDING."

Ar.Manu, Asst. Professor; A.Krupa, Undergraduate Participant; JNA& FAU, Masab Tank, Hyderabad.

In the growing world, we have numerous buildings which stand with pride outshone. They resonate the history of that era and are the living examples of the heritage and culture of the times. They emanate lifestyle, culture and wisdom of the previous generation. They are the sources of knowledge for cultures and their construction style. This paper aims to analyze the building construction materials of the building and the uses of the materials of the buildings after their deterioration. The sustainability of the material with respect to the climatic conditions and provide a useful solution in modern times. It provides an insight on the Reuse of building materials after the demolition of the building. It is a study of the material that goes through various processes after demolishing the building. It covers the process and stages of demolishing a building , how the materials are segregated and how it can be repurposed for future buildings which stand strong to the test of time. . The unique materials which are used in the building construction ,details like Wooden Entrance Porch, Ornamental Stucco Parapet, and Arched Verandah (which contribute to local culture and lifestyle) such Elements which can be reused. It is an example for how the buildings tell a story of bygone eras and how those details can be incorporated in the present day. Such traditional details incorporated in modern homes provide a sense of peace to the families that live in those homes by Reusing their design, elements and Materials

"ADAPTIVE REUSE: AN INNOVATIVE SUSTAINABLE APPROACH FOR EXTENDING THE LIFE OF HISTORIC BUILDING."

Ar. Ranjeeta Potpose, Associate Professor; Aditya College of Architecture, Mumbai

Adaptive reuse is not a new trend; the approach towards the adaptive reuse was established at the beginning of 19th century. There are many historical buildings with unique architectural styles, history and Effective built environment. There is a growing acceptance worldwide that conserving historic buildings provides significant economic, cultural and social benefits (Bullen and Love 2010). For generating sustainable values of these buildings, adaptive reuse can come out as a process of modifying, adapting and reusing outdated buildings with their existing structures to extend their life cycle whilst performing a new function. Towards revitalizing and generating sustainable values of these buildings, many historic buildings of cultural and historic significance are being adapted and reused rather than being demolished (Wilkinson et al. 2009) This paper aims to explore the adaptive reuse of historic building through Sustainable approach for extension of building lives. Our paper works in two stages. First, literature study is used to investigate effectiveness of adaptive reuse as an innovative approach for generating sustainable values and how it will be adaptive in reusing the historic buildings. Secondly few case studies are discussed to explain the role of adaptive reuse towards increasing the sustainable values of historic buildings. Finally, research paper concludes with recommendations for the adaptive reuse and strategy for extending the life of an historic building.

"A JOURNEY OF BUILDING SKINS FROM ENERGY CONSUMPTION TO CONSERVATION ANDGENERATION."

Ar. Shruti Pandit, Assistant Professor; Ar. Priyanka Churi, Assistant Professor; Er. Prashant Borge, Assistant Professor ; Aditya College of Architecture, Mumbai

India is soon going to face issue of energy crises, with rapid urbanization, high-density and high-rise cities with its constant increasing demand on energy. Most of the building's energy use is during its post occupancy phase, mostly arising from its need for artificial lighting and cooling or heating. In developing countries, metro cities blindly imitate Western approach, with no consideration to the local context. The paper focuses on questioning the purpose of building skin, its performances and its existence. The energy performance of metro cities like London and Mumbai, with different climatic zones, are analyzed on parameters like wall to window ratio, solar-incidence, natural daylight & wind. Thus, same is being analyzed by computational process, mathematical tools and techniques such as parametric design, real time simulation by trial and error method. Case-study of climate responsive skin of Al-Bahar, Abu-Dhabi is analyzed for its energy performance and for parametric façade design. These experiments and analysis based on developing intrinsic inter-dependencies between contextual data, structure and material logistic. Energy generation through façade that will harvest solar and wind energy to generate its own energy. Thus, lay foundation for the new era of self-sufficientperformance and net positive energy building that is adaptive intelligent building skin system. Hence, façade as an element of design needs to be redefined.

"RE PURPOSE THROUGH ARCHITECTURE- PROPOSAL OF TYPOLOGY OF SUSTAINABLE BUILT ENVIRONMENT THROUGH REPURPOSE."

Ar. Smita Chandanshive, Assistant Professor; Asmita College of Architecture, Mira Road, Thane.

Proposal of Typology of Sustainable Built environment through Repurpose required the study and integration of data on background of built environment, policies in practice and evaluation of existing condition. To work on creating such Typology, this paper presents a case study of a township of Walchandnagar Industries Limited. In spite of achieving business goals over decades, WIL infrastructure now dealing with challenge of under utilization of built environment, soon to be a dead land if ignored. An attempt is made to identify factors responsible for current condition, that explains about aesthetical and environmental state. Analysis considered incorporation of multiple criteria for suitable evaluation of factors. This paper combined "Purposeful approach towards built environment" with "meaningful living for Human." Exploration is done on rethinking on design to enhance the experience for youth as well as elderly with uplifted Spirit of living within community. Paper focuses on revitalization to achieve potential vibrant environment while maintaining an existing character of the place. Discussions are aimed to look through various perspectives and employ new purpose for existing unused infrastructure, yet perfectly align into bigger goal of WIL. Research brings light to open up possibilities for multi-income channels for creating sustainable community by plugging into Make in India Campaign. Methodology for research is personal interviews and surveys of residents. This approach is applied to identify constraints and opportunities for current and future conditions, in and around Walchandnagar area.

"LANDSCAPE APPROACH FOR ATTRACTING BIRDS AT RESIDENTIAL YARD AT SHRIRAMPUR TALUKA, AHEMADNAGAR DISTRICT, MAHARASHTRA."

Saurabh Anand, Student; Vaishali Saini, Student; Dr. Nand Kumar, Faculty; Malviya national institute of technology, Jaipur.

Urbanisation are the challenges which are being faced by most of the urban agglomeration. As in the case of Prayagraj, the growing population cause tremendous pressure on the water resource of the city. The maximum surface area is now covered with an impervious concrete layer which create more problem like water logging and surface runoff, which leads to less infiltration and an adequate amount of percolation does not take place. Prayagraj majorly depends on ground water for its daily ends. The aim of this article is to analyse the current issues as well as the future needs. There is a need to bridge this gap for which a model is proposed. By the help this model we are conserving and protecting the economics of water that would be returned with the calculation of 15 years of the systematic study.

"REPROCESSING LEFTOVER SPACES INTO CAMPUS ASSET: A PROPOSAL TOWARDS FUNCTIONAL REGENERATION OF THE BUILDING COURTYARDS OF SUST."

Gourpada Dey, Assistant Professor; Raduan Md. Saiful Islam Prottoy, Undergraduate; Mushabbir Muttak, Undergraduate; Department of Architecture; Shahjalal University of Science and Technology, Sylhet, Bangladesh

In recent decades, responsive reuse of waste materials became a growing practice in architectural space-making as a part of environmental consciousness. However, the wastage of space, particularly in non-historical public buildings, remains mostly unnoticed in the general practice of reuse. The academic buildings of Shahjalal University of Science and Technology (SUST) contain open to sky courtyards at the center and enclosed by single-loaded corridors on all sides. Those courts remain unused maximum time of a year. Although designed with positive intention and have significant potentiality to contribute in the learning environment, generally count as leftovers in reality. This research is a primary attempt to find and investigate the shortcomings of these designed courtyards and propose space modification options to make those valuable places more integrated and usable. The research method adopted a combined approach consists of intensive literature study, morphological analysis and planning considerations, microclimatic analysis, participatory questioner surveys among the stakeholders, interviewing the experts and selective national and international case studies. Finally, a specific affordable space modification solution has been proposed by considering the conflicting issues that the research has identified to make those courtyards active in a new way.

"REVIEWING OF VERNACULAR ARCHITECTURE DEFINES BIOMIMICKING THERMOREGULATION STRATEGIES TO ACHIEVE ENERGY EFFICIENCY IN BUILT ENVIRONMENT."

Hima C S, Assistant Professor; Dr.Vinaya Hiremath, HEAD; Prof. Divya Sharma, Assistant Professor; SCHOOL OF ARCHITECTURE, KLE TECHNOLOGICAL UNIVERSITY, HUBLI.

Every organism in the environment assists over its lifetime and this lifecycle can be imitated by humans to create an environment in which there is no waste. Biology has been the source of innovative solutions from nature in many disciplines. Biomimetic design is the field that ranges from accessing adaptive, sustainable and energy-saving solutions for Architectural and Environmental challenges. Authors interest towards Bioinspired Architecture aim to structure this paper for effective understanding of Energy efficient Building. In recent theories, more analysis & explorations towards Bio mimicking thermoregulation strategies of nature leading to significant energy saving & indoor thermal comfort have been observed. This paper is an attempt where prototypes of a Vernacular Architecture v/s Modern Building is Documented, as a process, comparative behaviour analysis concerning to Recycle materials is explored using Simulations Eco-tect, E-Quest & Solar Radiance. Which has given an insightful result of Achieving 35 - 40% of Energy efficiency. The analysis has further experimented with material applications of Bio-inspired architecture which is a great experiment to form Research documentation. Nature's inspiring solutions can be imitated in innovative construction units, adaptive kinetic façade, or manipulation of a building plan. The objective of the paper is to strengthen the concept of ecologically sustainable energy-efficient design strategies, which can scale down the waste of resources by understanding the adaptation methods in natural systems. Paper Examines biomimicry forms and biomimetic materials in architecture as a potential method to achieve sustainable building design.

"UTILIZING RECYCLED MATERIAL FOR CLIMATE RESPONSIVE HOMESTEAD PROTOTYPE IN SUNDERBANS."

Md. Raquibul Hassan Bhuiyan, PG Student; Sumiya Shirin, Undergraduate; Bangladesh University of Engineering and Technology (BUET)

The disaster-prone area of Sunderbans lacks a low-cost homestead prototype to withstand severe cyclones and storm surges. These annual disasters cause the rebuilding of the homesteads repeatedly afterward, resulting in an ever-increasing cycle of carbon footprint. Simultaneously, the northern area is urbanizing at a fast rate, creating a large amount of plastic waste. This non-experimental research aims to utilize plastic brick and recycled steel drums to create a semi-amphibious homestead prototype with necessary structural adaptability. The research utilizes open-source knowledge of the non-profit organization named "Recycle Rebuild" for plastic brick production. This lightweight, easily buildable, waterproof, and low-cost brick directly lessens used plastic in nearby areas, leading to an alternate recycling industry. The prototype utilizes recycled materials like plastic, drums, and bamboo for flood adaptability, structural stability, rainwater harvesting, solar, and biogas energy for a sustainable lifestyle. The prototype follows the existing rural building technique with necessary minimal improvisation. The findings focus on utilizing recycling materials for disaster adaptability in both cyclone and flood events and improving home-based economy by the continual of daily functions in disaster events. In extreme cases, the prototype can be rebuilt using the dismantled plastic bricks, minimizing the carbon footprint significantly, and increasing climate resilience.

"LANDSCAPE APPROACH FOR ATTRACTING BIRDS AT RESIDENTIAL YARD AT SHRIRAMPUR TALUKA, AHEMADNAGAR DISTRICT, MAHARASHTRA."

Ar.Dipeeka Arbatti, Assistant professor; Pravara Rural College Of Architecture, Loni

Landscape approach for attracting birds at residential yard is micro level site development and could be treated as a prototype for development of residential landscapes. This study is aiming to derive planting policy Guidelines and Policy for developing habitat patches at residential yard for attracting birds at residential yard. Objectives of study are to collect information about habitat, behavior and ecology , by conducting live case study and synthesis of how spotted birds respond to existing landscape and habitats of residential yard. Methodology would be conducted through Literature review and live case study. From the above study it is found that, Total 26 types of birds were spotted and observed in live case study for five months , from March to July. 10 Insectivorous, 5 Fructivorous, 4 Granivorous, 2 Nectivorous, 3 Carnivorus, 2 Omnivorus birds are observed in this study. Molluscivorous, Mucivorous, Ophiophagous, Palynivorous, Piscivorous birds are not found in the case study. From this study it is concluded that, food, water ,Shelter , Mates for Nesting and Reproduction are main components for attracting birds at any landscapes. Patches of woodlands and grasslands along with water feature are extremely important for attracting insectivorous and Fructivorous birds. Flowering shrubs and ground covers are important for attracting Granivorous and Nectivorous birds. Huge trees are recommended for attracting Omnivores, Avivorous And Carnivorous birds.

"LANDFILL AS AN OPPORTUNITY TO CREATE RECREATIONAL OPEN SPACE: CASE OF KALYAN DUMPING GROUND."

Shraddha Rajendra Palande, Masters in Landscape Architecture, L.S. Raheja School of Architecture, Mumbai.

Dumping grounds occupy a large portion of land parcel in the dense city fabric. When such dumping grounds reach their capacity they are closed permanently, leaving the heaps of garbage untreated. Such garbage which occupies space and its disposal is unplanned, can be utilized and put to use in the creation of mounds. The filling material to achieve the desired shape of the mounds could be obtained from the existing dumping ground. The city which lacks open spaces can look at such parcel of land as a possible recreational open space. The dumping ground at Kalyan which looks like a hillock has created a change in the skyline of the city. This dumping ground is located on the western edge of the city along the bank of Ulhas River. The presence of this garbage hillock has not only created a visual blight to the city but also has many effects on the water, soil and air quality. Currently, in smart city proposal, the closure of this dumping ground is proposed, which provides an opportunity to develop this area as a recreational open space. A phase-wise approach is required to significantly reduce the hillock into mounds and develop it as an open space.

"REMODELING AN UNDERGROUND WATER RESERVOIR (UWR) PROTOTYPE INFUSING NEW PURPOSES AS A SUSTAINABLE DESIGN STRATEGY FOR HILLY AREA."

Shuvra Das, Lecturer; Chittagong University of Engineering and Technology, Chittagong; S.M.Rumman Mashrur Chowdhury, Lecturer; University of Asia Pacific, Dhaka, Bangladesh

People in the hilly areas of Chittagong Hill Tracts (CHT) use water from surface water bodies, such as freshwater streams, reservoirs, rivers, etc. with or without treatment, during the rainy season (June to September). But during the dry period, these sources become limited and scarce. Presently different NGOs and governmental bodies are promoting technical supports for adopting new technology including the construction of underground water reservoir (UWR) for storing waters in the rainy seasons to avoid water crisis during the dry season. In most cases, these prototype underground water reservoirs, designed for plain land, are difficult to construct in sloppy land and used only in dry seasons. The study area, an orphanage called Megher Bari, operated by Bidyanando Foundation in Naikhongchori, Bandarban, had a similar case of a water crisis with a proposal of UWR design intervention. During the predesign study, analysis of surrounding context, collection of the meteorological data and focus group discussion was conducted to find out the possibilities of the new functions. The study thoroughly revealed some design possibilities, based on which design decisions were made to infuse new purposes in the UWR prototype for the hilly areas ensuring its easy operation and maintenance throughout the year.

"CULTURAL SIGNIFICANCE OF FIBONACCI NUMBERS - A REVIEW OF INDIAN TEMPLE ARCHITECTURE BUILT ENVIRONMENT."

Shynu R.V, Assistant professor;Santhosh Kumar K.G, Associate Professor (HOD); Sambath R.D, Assistant Professor; TKM College of engineering- Kollam

This literature review attempts to investigate fractal-based social practice through the traditional construction of Indian temple built environment. Logical examination bunch exploring the idea of driving the fabricated built form in temple architecture. Specialists have been investigating the realities with respect to the impact of mathematical examples over the built environment of temple architectural styles. Temple architecture developed based on pure mathematical calculations. Researchers have been exploring the facts regarding the influence of geometrical patterns over temple architecture. Since designs show cadence and rhythms have a critical part in music, it is pertinent to discover the significance of social effect over the fabricated environment in temple engineering. Ancient social information was moved and polished as Vedas in which musicality has a critical job. The models recognized from nature show the mathematical degree, so it is basic for exploring whether Vedic musicality had any effect over the built structure. The examples distinguished from nature show the numerical extent, so it is critical for researching whether Vedic musicality had any impact over the constructed structure. Findings indicate that the traditional culture has a huge part to moderate Fibonacci grouping for supportable practice. Indian old practices depend on the information saw from nature itself since nature is an information stage dependent on a large number of long periods of self-variation. So the examination proposes conveying further logical examination over the Vedic domain to investigate its old manufactured practices.

"CONSERVATION OF PAWANA RIVER ECOSYSTEM AND ITS ROLE IN DEFINING SURROUNDING LAND-USE."

Madhura P Merukar, Associate Professor; Rutuja Madhududhan Kulkarni, SBPCOAD Vastushree Architects,Pune.

Urbanization is a development driver of humans amongst Industry, Tourism, and Agriculture on earth. Thus, dense urban populace consumes more natural resources which further increase demand and pressure on ecosystem. Ecosystem services are defined as human benefits obtained from ecosystem processes. Urban ecosystems are where the built infrastructure covers a large portion of land surface, or in which people live at high densities. Rapid Urbanization causes environmental degradation giving rise to urgent need for maintaining balances between itself and ecosystem. This paper discusses on Pawana River ecosystem conservation and defining its surrounding land use pattern for 200 meter wide stretch on both sides of river bank from source to confluence. The existing land use and ideal model will be superimposed to evaluate strategies which can act as solutions to issues. To achieve balance between, Green (environmental factors.), Gray (technologies), Blue (water management) and Red(regulations). Expected outcome is derivative for using River ecology conservation as a framework for Land-use planning and enhancing Riparian biodiversity hotspots. It has two parts; identification, quantification, gaining information and knowledge of ecosystem; Application to obtain rational, sustainable and secure land use management.

"AN INVESTIGATION ON CONSECUTIVE PATTERN OF BANGLADESHI TRIPURA COMMUNITY, FOR DETECTION OF A DUAL ACTIVITY MODULAR FRAMEWORK."

Tahjiba Tarannum, Graduate Architect; Rahanat Ara Jafar, Lecturer; Mahbuba Afrin, Graduate Architect CUET, Chattogram.

"Indigenous People," or "Ethnic Minorities," are termed to identify few social castes whom carries harmonic social-cultural individuality which distinct from dominant stratum. The majority among 11 tribes, "Tripuris" are larger, living at CHT (Chittagong Hill Tracts) region in Bangladesh whom are the aborigines of North-East India & Bangladesh. Anteriorly, for living Tripuris depends upon Shifting Cultivation and animal-husbandary but environmental damage, severely effects on their economies & frequent discriminating actions due to ethnicity are gradually vanishing their tangible living pattern. For restoring the tangible pattern & economic progression, Bangladesh Government includes them in a development project titled "Ekti Bari Ekti Khamar", that's basically a farm cum shelter for every rural individual. The objective of the study is identification of their culture & living pattern from various tribes, which will certainly help in perceiving their settlement evolution with livelihood pattern. The discussion focuses on detecting of a modular framework from sustainable local materials, incorporating their living, & working/farming zone in a frame with a mixture of consecutive & modern technics. For limitations in standard verses, data were collected from historical background, survey, case studies & interviews, aiming at to build a module to recourse their dual activity zone_ living & livelihood.

"TINY PLASTIC BOX."

Prof. Ar. Preyan Mehta, Spatial designer, Educator, Entrepreneur, Owner and Founder, PM & Co.

This paper discusses the solution for two of the World's largest problems- Plastic Waste Management and Housing. Today, a family of 4 persons in developing countries, like India, require a minimum of 30,00,000/- inr to own a decent house with basic amenities. Given the current scenario that would take roughly 50 years for that family to finally own a house[1]. If that were not enough, we've created another monster in our laboratories famously known as Plastic[2]. The paper tries to merge two concepts- Plastic Recycling and Tiny House. Currently, if we were to visualize the amount of Plastic produced till date, it would make a Cube of 1.8km, or 6.9km3 in volume[3]. Consider this, that a single Tiny House on an average is 27m3 in volume (providing shelter to a family of 4)[1], it could hypothetically create 255.56 million Tiny Houses, i.e. can shelter 1.02 billion human population (roughly 13% of the current World population). Though this premise is idealistic, and doesn't consider a lot many unknowns and variables, it helps us visualise the Problem and the Solution more effectively. Using plastic, will not only help us solve the plastic waste issues, but will also help make the tiny houses as cheap as 1,00,000/- inr (96.67% cheaper than the current cost). The paper will not provide a Design solution, rather a Strategy, for further Research and Implementation, based on these variables- Existing solutions for either or both the problems; Feasibility by fostering new Businesses and Markets; Phases for implementation; and Roles of different Stakeholders.

"RETHINKING OF TEMPORARY SHELTER DESIGN IN THE FORM OF DEPLOYABLE SHELTER FOR PILGRIMS."

Ar. Bijal M. Vakharia, Assistant Professor; Ar. Mihir N. Vakharia,Assistant Professor; Dr. D Y Patil College of Architecture, Akurdi Pune, Pune, India

India is among one of the vast countries, with diverse cultures and ancient civilization. There are variety of spiritual groups residing in India. In India we discover the oldest pilgrimage tradition within the whole world. The practice of pilgrimage in India is so deeply embedded within the cultural psyche and therefore the number of pilgrimage sites is so large that the whole subcontinent can be considered one grand and continuous sacred place [1]. One of the main problems faced by the pilgrimage tourists, majorly with reference to accommodation facilities especially during festive season. The accommodation facilities available to pilgrims are insufficient in comparison to the number of pilgrims. Existing temporary shelters employed by the bulk of the pilgrims within the sort of conventional tents aren't comfortable, fundamentally insufficient in serving the requirements of the pilgrims. Also, it lacks the flexibility and speed of deployment necessary in modern conflict. Thus, the aim of this research is to rethink and investigate different sort of deployable shelter with small compacted volume, rapid assembly, and simple deployment for the Pilgrims. The research explores the origami geometries with respect to its application for temporary shelter by considering all the parameters that serves the needs of Pilgrims. This paper provides the detailed comparative study of the best suited origami folding pattern and materials to create geometries which can further be used for temporary shelter application by pilgrims.

"SUSTAINABLE AND DIVINE DEVELOPMENT OF BUILT ENVIRONMENT."

Ar.Shobha Dastapur, Assistant Professor; Poojya Dr. Shivakumarswamiji School Of Architecture, Kalaburagi.

Sustainability is the current debate in building technology. The energy consumption of buildings varies according to factors such as social differences, climate, geographical location, cultural habits. The traditional architecture has many features such as orientation with respect to sun, space planning, openings, sunspace provision, construction techniques, and building and roof materials. The importance of the courtyard as a source of positive energy and vibrations in the centre of the house, one of the passive cooling techniques. The primary role of courtyard spaces is to protect the occupants from harsh outdoor conditions and provide environmental functions such as natural lighting and ventilation. Protecting building from solar radiation. Orientation of building has an important function in energy efficient building. Oriented building utilizes the advantage of solar radiations and prevailing wind. This paper emphasizes the use of courtyard, the passive cooling method and orientation of the building in hot dry kalaburagi region. Synthesis of centuries of life experience. The focus of the paper is to understand the courtyard and orientation want to formulate sustainability. The descriptive study can identify the criteria influenced in decision making in reuse of the building that effected to the sustainable development economic, environment, social and architecture. The paper describes the descriptive and historical study of the proposed methodology for the study. By analyzing more than 400 years old residential building of Raya panduranga Deshmukh house (wada) in kalaburagi. Now some portion of Wada is utilized for rent purpose and to celebrate functions like Birthday, cradle ceremony etc.

"HEALTHCARE DESIGN – A THOUGHTFUL APPROACH ON SPATIAL DISPARITIES."

Sankeerani Shrinivasan, Associate Professor, School of Environment Architecture and Design, SRM IST,Chennai

Hospital is a healthcare space that aims to restore and maintain health. It is a lifesaving institution for a trauma patient. When someone meets with an accident, every second from thereon becomes vital to retain his life. Human tendencies and behaviour towards a space when in psychological trauma is adept to the need of a well-planned design. A hospital in such instance raises to the altar in saving a life. Medical and traffic surveys show the rise in number of accident cases in an alarming preposition through the recent past. If the medical caregiver's role is vital in this scenario, it is also inevitable to agree that an architect also plays a key role in designing the facilities and working on the intricacies of minimizing the circulation network in an effective way during those golden life saving time of a trauma patient in emergency. The Entrance from the main road to the Emergency department and Diagnostics from there, are the most sought after zones for trauma patients. To achieve optimised time management, it is key to understand the basic proximities to the required facilities, interconnectivity amongst these facilities and reduction of the travel distance between them.

This year's IDC 2020 focusses on these issues and seeks to examine the place and use of discarded and recycled materials in architecture, at the same time keeping in mind community spirit and aspirations of the end users. With its 7th edition IDC wishes to encourage the use of discarded or recycled materials that are endemic to the area due to a prevalent industry or lifestyle. Few of the materials that are currently being explored and propagated as building materials on similar pretexts is Ferrock, which uses wasted steel dust from the steel industry to create stronger concrete. Similarly, wooden pallets are often used to create homes in areas where goods are packaged or around docks.

This year's design challenge involves the use of sustainable strategies produced using discarded or recycled materials. Participants need to identify an area where the availability of discarded material or solid waste is high. The material is then used to propose a structure for the local community that will take into cognizance their immediate needs and encourage the integration of the society as a whole. The proposed structure maybe housing units that offer dignity of living standards, a school a community hall or any other public facility.

ABOUT IDC

7th IDC 2020 WINNERS:-

1. *Mr. Lakal Chamikara Piyarathna, Student (B.Arch), University of Moratuwa, Sri Lanka*
2. *Ms. Aditi Itankar & Mr. Pranav Kakade, Students (B.Arch), IDEAS – Institute of Design Education & Architectural Studies, Nagpur, India*
3. *Ms. Melisa Akma Sari, Students (Architectural Engineering), Faculty of Civil Engineering & Planning, Islamic University of Indonesia, Indonesia.*

BYOB BOTTLE BOAT

Location - Dikkowita, Sri Lanka

Lakal Piyarathna
University of Moratuwa, Sri Lanka

BYOB is a humble architectural intervention that would help the community to ***experiment innovative applications of the unused waste and new material possibilities****. This implementation of low-tech sustainability would also* ***enhance the skills of the community*** *that are boat building and fish net knitting/weaving. Also, such similar skill sets will be shared among the younger generations and other inhabitants of the community.*

Catharsis

Man, woman, their identities and emotions, positions and possessions, their convergence in thoughts and divergence in equity, all of this has been an unparalled part of the world's reality. But the nature of this fundamental unit has always been evolving, ever changing and adapting, which at the end intends in shaping societies and giving meaning to generations, then, how can architecture as an occupation that had experienced this phenomenon so closely be deprived of it?

With a global shift in paradigm towards modernisation, industrialisation and technology, it becomes an urge to let all the progressions happen keeping in mind the environmental concerns. Resources are limited, but with heaps of unused and products or even used and abandoned products it becomes an opportunity as well as responsibility to create products, spaces and architecture for social benefit.

Here by, we aim to ponder into field of availability of such resources and scope of implementation of the 'Architecture of Need.'

Up-Life Scenario

Muara Angke is a slum village located in North Jakarta. The majority of men in Muara Angke mostly work as fishermen while the women act as shell peelers. The shells that are peeled are left on the ground so they rot and pollute the soil, water and air.

Muara Angke is included in the government's reclamation project, to developed the area into apartment blocks. The government sees that local people live in slum areas and it is not feasible so that residents must be moved to flat-houses. The community does not want to be reclaimed because flat-houses is too far from the sea while the majority of the people are fishermen and they cannot afford to live without the sea. Until now, the reclamation process has found no bright spots.

The Uplife Scenario Project aims to save Muara Angke residence by improving the quality of life of the community. If the people of Muara Angke can improve the quality of life, so the reclamation can be prevented. Improving the quality of life of the poor in coastal areas start from economic improvements because people need to fulfill their most basic needs. Many poor people, even they cannot afford to eat, let alone care for the environment around them.

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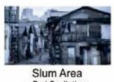
Site Analysis

Issue



Slum Area
- Bad Sanitation
- Semi permanent residence with poor health quality
- overcrowded population

Polluted Water
difficult access on clean water because the water is polluted by shellfish waste and plastic waste.

Shellfish Waste
People throw shells carelessly and eventually pollute the soil and water

Solution

1. Shellfish and plastic production Effect : - improve the economy of citizens - reduce shellfish waste and plastic
2. PUBLIC SANITATION effect: - awareness to save water - improving the health of citizens
3. PROPER HOUSING Effect: - population growth increases as quality of life improves issues: lack of land due to overcrowded population
4. Vertical Village Effect: - facilitates residents to live with vertical occupancy

"Hi, My name is Fariz. I live in Muara Angke, a very crowded district with poor sanitation."

"My father is the head of the fishermen. At night I used to go with my father to go sailing to catch Shellfish and come back during the day. Then my mother peeled the shells and brought them to the distributor agent. The shells are dumped into our yards without being recycled and then cause a bad smell which also pollutes our water and soil."

Scenario

3rd residence development

2nd better sanitation & public area

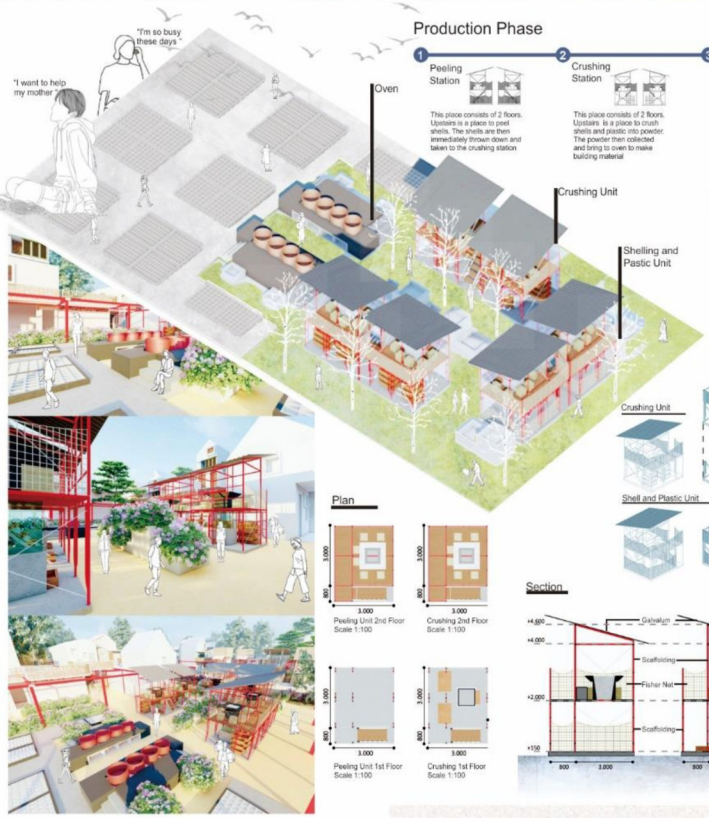
Omah Kerang

material factory from shell and plastic.

"due to reclamation issue, my fathers and residents then wanted to prove that we could survive by our self so that our land was not taken by the government. My father then invited the residents to build a Shellfish processing center called "Omah Kerang" to improve the local economy from processed shellfish and reduce shellfish waste."

"I'll help mom"

"We started learning how to process shells into ready-to-use building materials such as bricks, tiles and ceramics at this facility. Initially some residents were reluctant to join, but after seeing for themselves that Omah Kerang was able to add economic value to the residents, they finally joined. When I was 15 years old, I am no longer joined my father in catching shellfish, I helped my mother more at Omah Kerang."



Production Phase

1. Peeling Station — This place consists of 2 floors. Upstairs is a place to peel shells. The shells are then immediately thrown down and taken to the crushing station
2. Crushing Station — This place consists of 2 floors. Upstairs is a place to crush shells and plastic into powder. The powder then collected and bring to oven to make building material
3. Oven — There are 4 mix bowl on the oven. The shellfish powder and plastic flakes mixed with plastic to make batter then the batter will be taken to the drying spot.
4. Dryer — The dryer use natural sunlight to dry the batter. There are bricks and roaster & roof cast. The butter will poured inside the molding and then dry naturally under the sun. This shellfish construction material then can be used to sell to increase local community economy or even saved to increase local community housing quality.

Mix-container

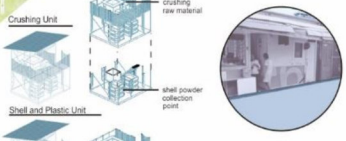
Fuel

Zero Waste Structure

the structure use waste scaffolding from reclamation project

Zero Waste Material

fisher net use as railing to keep people safe



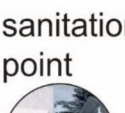
"we need clean sanitation"

"When I was 20 years old, the conditions has changed a lot. The community is now able to eat properly, the environment is also cleaner because shellfish waste has been drastically reduced. When economic problems improve, residents begin to think about living healthier and cleaner lives. The problem is that our area is very difficult to get clean water, we even usually use sea water for bathing and defecation."

Plan

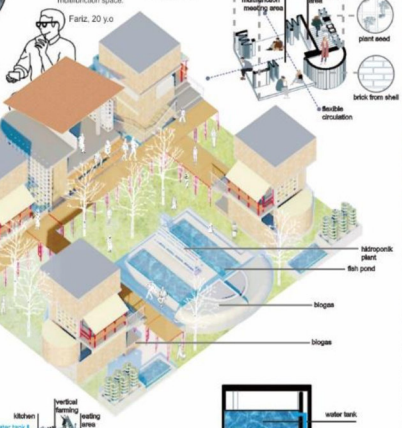
Section

sanitation point



The communal space is used as an additional public space which is also used as an educational space , social space and multifunction space.

"After our community collect enough money for "Public Sanitation". We built at several sanitation points in the village. The residents also started to renovate their houses, which were originally semi-permanent, into permanent materials that were obtained from Omah Kerang."

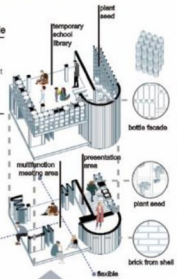


zero waste facade

the facade use transparent mineral water bottle as shading to create lig ht dynamic light and shadow.

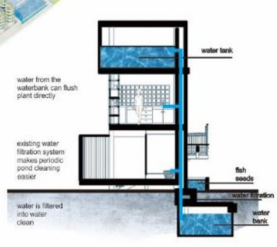
co facade

the facade use transparent mineral water bottle to create light dynamic lig ht and shadow.



sanitation points are used as public toilets , public kitchens , and water treatment f or the residents' daily w ater needs.

this area also used as public realm for society and foodproduction area.



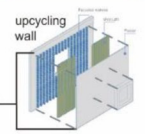
Vertical houses

In reviving the village that was "dead" drowned by the rubbish of its own community. This typology responds to a way of life that requires them to start small businesses to support their economy. These small businesses are usually referred to as "warung" as known as stall.

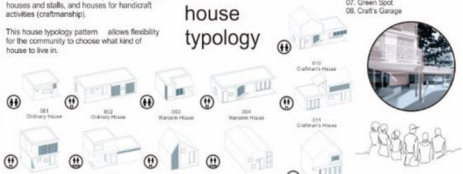
Based on the development of the narrative and the growing activity of this small area, the typological patterns of the houses offered are quite diverse and are distinguished by three main basic functions , namely ordinary houses, houses and stalls, and houses for handicraft activities (craftmanship).

This house typology pattern allows flexibility for the community to choose what kind of house to live in.

upcycling wall



house typology



"When I am 30, our village is very prosperous. Poverty and health problems have been resolved. Currently I will soon get married and build a new house, I still want to live in the village that my father saved and become his successor. With limited land, I invite the residents to develop this village into a lofty village so that expansion can continue."

the end.

About Our Association

The Council of Architecture (COA) has been constituted by the Government of India under the provisions of the Architects Act, 1972, enacted by the Parliament of India, which came into force on 1st September, 1972. The Act provides for registration of Architects, standards of education, recognized qualifications and standards of practice to be complied with by the practicing architects. The Council of Architecture is charged with the responsibility to regulate the education and practice of profession throughout India besides maintaining the register of architects. For this purpose, the Government of India has framed Rules and Council of Architecture has framed Regulations as provided for in the Architects Act, with the approval of Government of India.

Council of Architecture – Teacher's Training Centre facilitates faculty training program on innovative teaching methodologies, explore novel ideas and exploration in Architectural Research. It also aims at conveying the importance of practical knowledge in academics. The training imparted to the faculties provides an overview of various traditional and contemporary approach to teaching. It also helps to inculcate and encourage personal research and exploration that will enrich pedagogy.

The Sri Lanka Institute of Architects is one of the foremost professional organisations in Sri Lanka as well as the Asian region. The institute has been working on the professional practices of architecture in the country as well as education, which have been the primary focuses over the years. we are proud to note that we have seen a lot of improvements in the industry and have played a great role in contributing to the development of architecture as well as the raising of the standards in the country.

Sri Lanka Institute of Architects Law No. 1 of 1976 enacted by the National State Assembly vested statutory powers with the SLIA. One of the main objectives of the SLIA is to promote and advance the study, practice and application of and Research in Architecture and kindred subjects and the arts and sciences connected therewith.

The Indian Institute of Architects (IIA) is the National body of Architects in the country. Established in 1917, the institute today has more than 20,000 members and plays a major role in promoting the profession of architecture by organizing and uniting the Architects of India to promote aesthetic, scientific and practical efficiency of the profession both in Practice and in Education.

IIA is represented on various national and international committees connected with architecture, art and the building industry and is also actively associated with International Union of Architects (UIA) Commonwealth Association of Architects (CAA) and South Asian Association for Regional Co-operation of Architects (SAARCH).

PEATA has come to the age of youth on completion of 37 years of its inception. All great institutions have humble beginning. During years 1962 to 1965 architects whenever they met in Municipal offices at V. T., Bandra or at Ghatkopar, they used to talk about their grievances. There is nothing new about it. It is today's phenomenon too. But the murmur then was different. Circulars were confidential. Architects were suddenly confronted with faith accompli "Sorry, now Commissioner has instructed not to approve any plans in the wards". Some influential could get through but rest were left high and dry. They were flabbergasted. In those circumstances several young architects contemplated the positive actions and approach. Side by side the efforts of continuing education by means of work shops, seminars, symposiums, study tour being integral part of activities of any professional body were carried out wherever possible jointly with other like-minded bodies.

FOUNDED IN 1965

PRACTISING ENGINEERS ARCHITECTS AND TOWN PLANNERS ASSOCIATION

Amidst the present scenario of unprecedented growth and change across all levels of urban settlements, especially in our part of the world, the need for increased networking and dialogue between the participants of such change becomes imperative. The emerging directions of change and developmental choices as witnessed all around us today raises immense challenges and possibilities towards a dynamic and contributory role of the urban design profession within different societal conditions. It is at this significant juncture that the newly constituted Institute of Urban Designers India (IUDI) as a national level association of urban design professionals, academicians and practitioners has come into being. The field was born out of a quest for quality of the urban environment. This quest continues to date in responding, refining and regulating urban environs that have both functional and aesthetic appeal to those who inhabit it.

INSTITUTE OF URBAN DESIGNERS INDIA

About Our Association

The Indian Green Building Council (IGBC), part of the Confederation of Indian Industry (CII) was formed in the year 2001. The vision of the council is, "To enable a sustainable built environment for all and facilitate India to be one of the global leaders in the sustainable built environment by 2025".The council offers a wide array of services which include developing new green building rating programmes, certification services and green building training programmes. The council also organises Green Building Congress, its annual flagship event on green buildings.The council is committee-based, member-driven and consensus-focused. All the stakeholders of construction industry comprising of architects, developers, product manufacturers, corporate, Government, academia and nodal agencies participate in the council activities through local chapters. The council also closely works with several State Governments, Central Government, World Green Building Council, bilateral multi-lateral agencies in promoting green building concepts in the country.

About Our Industry Partners

Carbon Craft design is a Mumbai based design and material innovation company started in 2016. We are a group of Architects and Engineers developing carbon offsetting products for the world's construction demands to mitigate Air Pollution at scale. It all started with this question It then dawned us that it requires an Architectural intervention. There are methods to capture pollution but the next big question is what to do with the captured pollution. We set out to find a way to upcycle this into a new form. With a Technology that makes a real-world impact and an Architectural perspective towards scaling, we aim to intervene the construction industry to make a collective impact in solving this problem. Conventional building materials are all around us due to its modularity and repeatability.

Founded in 2009, RUR GreenLife is a socio-environmental organization that passionately works for the planet by employing end-to-end, cradle-to-cradle approach toward urban solid waste management. At RUR, we ideate, design, build & implement customized turnkey 'waste-to-resource' solutions that are sustainable & decentralized. We help households, schools, organizations & corporates optimize waste recycling (>90%) and thus minimize the impact on landfills. They believe to spread eco-consciousness amongst citizens & help them contribute to our planet adopting good green practices.

REUSE
REDUCE
RECYCLE

CONTACT

Email:
idrc2020.aditya@aditya-arch.edu.in
Or visit us at
http://adityacampus.org/idrc/
PHONE
+91-9833-300-496 &
+91-22-611-06135

ADDRESS

Aditya College of Architecture,
6th floor, Aditya Educational Campus,
R. M. Bhattad Road, Ram Nagar,
Borivali (West), Mumbai 400 092
Maharashtra, India.

IN ASSOCIATION WITH

Council of Architecture INDIA

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IGBC

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Council of Architecture Training & Research Centre TRC

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