Urban Planning and Architectural Design for Sustainable Development (UPADSD) - 7th Edition 2022

A Book of Abstracts

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Urban Planning and Architectural Design for Sustainable Development (UPADSD)

A Book of Abstracts submitted to the 7th edition of the international conference on **Urban Planning and Architectural Design for Sustainable Development** (UPADSD) 13 – 14 Sep 2022

Acknowledgements

IEREK would like to express its appreciation to all members of the staff and scientific committee for their tremendous efforts and contribution to the growth of this institution and for making the seventh edition of the international conference on Urban Planning & Architectural Design for Sustainable Development. IEREK would like to thank the conference chairperson, Professor Francesco Alberti, who is an Associate Professor of Urban Planning and Design at the University of Florence, Italy. Prof Alberti and his team had a hand in making the 7th Edition of this conference what it is today by providing scientific and logistical support throughout its organization since 2015. IEREK takes pride in being an institution that amasses a highly qualified and competent team who restlessly worked for months to make this conference what it is today in hopes of creating a well-rounded society. Last but not least, we cannot neglect the prominent role undertaken by our editors and reviewers who made it their duty to help this institution in spreading knowledge to the masses.

Foreword

The majority of people globally currently live in cities. Cities attract the brightest minds, ambitious individuals in search of a brighter future, that strive to create and innovate. The structure and planning of these cities then proves vital, for they can be centers of knowledge and learning, that inspire and facilitate the process of creativity and knowledge acquisition. Well-planned cities with robust infrastructure, public open spaces that encourage creative output, accessible facilities, and efficient transit systems ensure the well-being of their residents, and contribute to a better world, and climate.

One of the crucial aspects that determine the efficacy of urban planning, is the implementation of a stable and reliable transit system. Effective urban transit systems encourage the inclusion of pedestrians and cyclists on public roads, mitigate the effects of automobile reliance and reduce the emissions of greenhouse gasses. Information and communication technologies (ICT) further ease the implementation of these public transit networks, acting as a smart management tool, and facilitating efficient schedule organization.

Architectural development is a known cornerstone of urban planning and sustainable development. The buildings that shape urban areas, if executed correctly, breathe life into the city, and act as beacons of innovation, development, and safety. Contemporary methods of construction that hold promise for continual sustainability are approaching architectural design from a biomimetic point of view, which takes nature as a model, and emulates its image. These architectural constructions not only enliven city squares, and introduce a sense of oneness with nature among cities' residents, but also mitigate climate changes effects, and incorporate climate responsive designs.

On a more creative note, the integration of art within cities has a monumentally positive effect on their livability. The inclusion of artistry promotes cultural growth, and mental well-being, and has even been documented to reduce the crime rate. Artistic expression cannot be neglected in effective urban planning strategies, for it enriches the lives of people within cities, and uplifts societies and cultures alike. Freedom of artistic expression & the integration of creative spaces offer invaluable positive influences on cities' inhabitants and plays a vital role in sustainable urban development.

This book, and the papers compiled within it, discuss the crucial topic of sustainable urban planning and architectural design, and deliberate upon its positive effects and contributions toward a stable climate, well-being of residents, and overall resiliency to combat natural disasters, and seek the perseverance of cities through generations.

Word from the Chairman of the Board of IEREK

It is my absolute honor to be launching this conference on Urban Planning & Architectural Design for Sustainable Development (UPADSD), the seven Edition of its kind.

IEREK- International Experts for Research Enrichment and Knowledge Exchange - is an institution that began pursuing its goal of reaching excellence in the research field in 2013, and since then has been connecting the world's scholars and providing them with a platform that would advance all their endeavors. Building international relationships with prestigious universities and institutes worldwide is one of IEREK's main goals, spreading knowledge and enhancing research around the world, along the way, through collaborating with trustworthy partners who share its same vision.

The UPADSD conference was first established in 2015, a collaboration first established with the University of Salento in Lecce, resulting in a proceedings book published in Procedia - Social and Behavioral Sciences, by Elsevier as well as astounding success after gaining world-wide recognition and international participation. UPADSD 2015, which had set the basis for the birth of The Italian Alliance, which consists of a signed agreement between Italian universities and IEREK, in support of its activities, has led us to where we are today.

That said, IEREK continues to hope to present the world with a conference that positively contributes to its relative field and makes way for scholars to combine their ideas for the greater goal of discovering new and innovative solutions to the issue at hand, with the aid of our scientific committee comprised of distinguished professors and researchers from a variety of international, established universities.

Finally, I hope that the conference succeeds in delivering its message to the world of professionals in the various concerned disciplines in order for their work to be put into motion. I also declare our welcome to all audiences, from undergraduate to postgraduate students, and all who will benefit the most out of this conference. I am looking forward to meeting you all and collaborating within this successful experience.

Mourad S. Amer

Architect, BSc, DSc, MSc, PhD
IEREK GmbH CEO & Founder

WORD BY THE CONFERENCE CHAIRPERSON

It is a pleasure for me to introduce the 7th international conference on "Urban Planning and Architectural Design for Sustainable Development" that is organized by IEREK in collaboration with the Department of Architecture of the University of Florence, Italy.

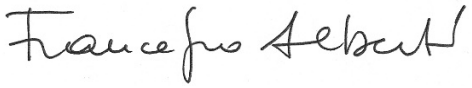
After two editions which were held online because of the restrictions due to the Covid-19 pandemic, this year the Conference will be finally take place in a physical place, that is the headquarters of the Department of Architecture in Florence: a building that has lived many lives, a significant example of urban retrofitting in the framework of a World Heritage historic center. Moreover, the conference will also have online sessions to meet the needs of many of our international attendees.

This year we are celebrating some important anniversaries that have a lot to do with the topics of the conference: 50 years from the first UN Earth Summit, titled, "Only one Earth", that was hosted in Stockholm in 1972; 30 years from the World Conference on Environment and Development that was held in Rio de Janeiro in 1992.

If the world had immediately followed the path indicated by those conferences and that book, today we would not be talking about urban planning and architecture *for* sustainable development within a context of perennial emergency, but about innovations that fit into the groove of already established models of sustainable cities and communities.

The accumulated delay makes our task as researchers even more necessary.

I am therefore grateful to those who have worked to provide us with this opportunity to discuss advances in our disciplines each year, and to all the participants, keynote speakers and paper authors, for taking the opportunity of this conference to share knowledge in a field of such vital importance for the future of us all.



Professor Francesco Alberti

Conference Chair & Associate Professor of Urban Planning and Design at the University of Florence, Italy.

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Part I
City Planning: Urbanization and Development

Urban Landscape Impact on Human Behavior

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Abstract

Human behavior is considered a basic corner in building communities. Lately, through observing human behavior in our community, it seems obvious that it has an urgent need to be enhanced. Academics and stakeholders should spot light the priority of enhancing human behavior in every career due to its importance in developing communities. The authors aim throughout this paper to enhance human behavior using the urban landscape social dimension, as the social dimension is related to achieving human life quality, needs and many social aspects such as behavior. Through using the induction method, the effective relationship between achieving needs and human behavior had been assisted. Therefore, the authors adopted the idea that achieving needs from the urban landscape as the human surrounding environment can contribute in enhancing some human behaviors such as stress. Accordingly, the authors analyzed previous studies and researches related to urban landscape, human needs and their impact on human behaviors. As a result, a theoretical framework named URBAN SOCIALSCAPE has been suggested. This theoretical framework depends on the urban landscape social dimension which tends to achieve life quality, by setting five principles that ensure achieving human needs from the urban landscape. Applying this framework can contribute in creating a better surrounding environment and consequently motivates good behaviors, to support the community development and become more sustainable.

Keywords
urban socialscape; urban landscape; human behavior; urban landscape social dimension.

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The reciprocal relationship between Urban Form and Social Sustainability Aspects

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Abstract:

The connections between the physical and social attributes of the area are perplexing and are impacted by the interrelationships among individuals and metropolitan structures. Subsequently, the improvement of social connections on a metropolitan scale ought to start by focusing on a specific space by carrying out and utilizing a communication configuration approach.
Many researchers have studied the relationship between urban configuration aspects and the social aspects. Rarely of them concluded the affected and affected indicators that explain the relation between Urban Form aspects and social aspects.
The paper explores a literature review-based analysis to extract the most important indicators responsible for the interaction between the urban and social aspects in the neighborhood scale. The paper starts with a literature review of the neighborhood's social aspects and then presents the Urban Form aspects literature review on the same scale. Then, it extracted the most important indicators responsible for the interaction between them. The paper ends up with A Causal Loop Diagram representing the effect of each indicator on the others.

Keywords
Social Sustainability, Urban Form, Mixed Land Use, Walkability, Causal Loop Diagram

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Conviviality of Public Spaces in Egypt: A case study on New Cairo Markets

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Abstract

With a diminishing number, and value, of public spaces in the new settlements in Egypt, informal markets arise to serve these areas. One of the key concepts to understanding the phenomena is the conviviality of public spaces. Conviviality is a novel concept that falls under the topic of creating good public space. The purpose of this paper is to understand the concept of conviviality in relation to the quality of public spaces and to what extent different public spaces- especially markets in new Cairo that has different socioeconomic backgrounds and different contexts in accordance with formality - achieve what is so-called conviviality. The paper suggests a new framework adopted from the literature that is associated with the line of thought addressing the concept of conviviality. The main result shows that markets in general, contribute to creating vitality and liveability within urban spaces despite their socioeconomic status but are not necessarily considered convivial. The paper shows that conviviality as a concept still needs further clarity in both theory and practice to better suit different types of public spaces.

Keywords

Conviviality; Formality; Markets; City Expansion; Public Spaces.

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Equitable TOD (eTOD): current thinking and solutions for the future

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Abstract

Transit Oriented Development (TOD) has become a widely used urban development methodology the world over. On the one hand, it is hailed as a highly effective manner through which to bring about sustainable, mixed-use, compact and sustainable cities. On the other hand, it has received strong criticism for the manner by which it can segregate cities between the wealthy and the poor. In the face of this, equitable TOD (eTOD) has gained weight, where more recent research in the Global North has offered insights into how the displacement of vulnerable urban residents living in TOD development areas can be mitigated. This article aims to give an overview of some of the current thinking in TOD and eTOD methodologies, and in doing so offer a useful backbone of some of the relevant literature for anyone who might be carrying out research in the field.

Keywords

Transit Oriented Development (TOD), Equitable Transit Oriented Development (eTOD), justice

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The Effect of Vertical Gardens on Biodiversity within an Urban Environment

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Abstract

Whilst the cities of the world seem to have an insatiable appetite for expansion, development and growth, the natural habitat within them is in constant decline and fragmentation. Space has become valuable, and as such green areas come under threat. In the face of this, vertical gardens become attractive, offering biophilia, energy reduction and ecology services in a vertical area. Whilst the gardens often consider the aesthetic design, there is little research on the empirical, measured ecological services they give in maintaining biodiversity. This paper aims to fill some of that gap, researching into the diversity of birds and invertebrates found at three vertical gardens in Quito, the capital of Ecuador. It was found that they do indeed play an important role, and so should be taken into account for design, planning and policy as part of sustainable city development of the present and for the future.

Keywords

Vertical gardens; ecology; birds; invertebrates

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Gentrification in Jordan: The Abdali Redevelopment project as a case study

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Abstract

Purpose

The purpose of this research is to examine and investigate gentrification in the context of Amman's Abdali Urban Redevelopment Project. Demonstrating how land-use change and displacement will affect the urban fabric as a result of the Abdali project.

Gentrification has attracted widespread attention since its birth in London and several east coast U.S. cities in the 50s and 60s. Nowadays, gentrification is a process experienced by cities around the world, not only confined to the global North (Loretta Lees, Shin, & López-Morales, 2016).

Case Study

The Abdali redevelopment project was launched in 2003 on government-owned land formerly a military site (brownfield), considered a stark for neoliberalism. Embodying the largest single plot of land within the city of Amman that is available for private development, by relying on the agendas of privatization and liberalization, considering the private sector to be the main engine for growth.

The Abdali project is still an ongoing project with two phases to be completed. Although the project faced several obstacles, leading to the suspension of construction for years before the completion of the first phase and the official opening in 2014.

Methodology and Findings

The researcher employed a mixed methods approach by integrating spatial maps and quantitative data represented by statistical indicators to investigate the research questions.

The findings have revealed that although the project has been impacting the residential and commercial fabric in the adjacent areas in terms of land-use change, displacement for residents, property value augmentation, and traffic problems, there is a lack of data available on a sufficiently granular temporal and spatial scale and a lack of empirical evidence of the extent of the displacement occurring in the examined area. To overcome this limitation, the researcher will employ a qualitative approach to infer the patterns and processes of displacement in her future research.

Keywords

Gentrification; Neoliberalism;Urban Redevelopment

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Alternative models for the city-density: the case of Lazar Khidekel

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Abstract

During the 20th Century industrialization and population growth have produced intensive urbanization, imposing a consumption of resources today no longer sustainable. In the contemporary cities the constant grow of inhabitants in urban centers and the environmental emergency that impose limitation on soil use are the main issue that those involved in urban design are faced with. In many urban centers the pressure of density on land produces few answers in which the tall building typology represents the main solution.

Through the selection of significative case studies, this work aims at attesting whether it is possible to find reliable options to the exclusive scenario of vertical development and to verify what opportunities can be granted to an alternative model of densification that correspond to the refusal of any description of urban fact given as a catalogue of conventional solution to the problem of land consumption.

According to this perspective, some experimental projects carried out during the 1930s in the Soviet Union represent a set of potential, innovative and experimental answers in the search for new forms of settlement, and new ways of life for contemporary society. In this context the experience of Lazar Khidekel raises particular interest: his experimental projects develop an idea of settlement generated by the superimposition of linear structures elevated mechanically above the ground, and it represent a solution for preserving soil addressing the issue of density.

Khidekel proposes an approach that contains many unfulfilled intentions, where is possible to derive some principles susceptible to innovative development. In particular, it would allow the elaboration of typologies able to include, adapt and organize processes made of assimilation between multiple activities and variable human behaviors.

Keywords

Urban density; contemporary city; Lazar Khidekel; Soviet avant-garde; innovative development;

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Housing Design, Health and Wellbeing: Learnings from Housing projects in Mangalore, India

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Abstract

Good Health and Well-being are essential features of quality urban living. With rapid urbanization and increasing population in countries like India, Health and Well-being are often un-discussed in Architecture and Urban Studies. Designing cities for Health and Wellbeing has extended benefits in achieving sustainable urban environments. House is one of the areas where people spend most of their time a day. Understanding how the housing design influences the health and wellbeing of inhabitants is essential because more people are expected to live in urban areas, and there are already many housing projects going on to meet the housing demands in cities. This study aims to understand the role of housing design in influencing the health and wellbeing of inhabitants at two levels; one at the indoor level (house level) and the second at the outdoor level (site and neighborhood). An empirical study was conducted on 4 low-rise and 4 high-rise housing projects in Mangalore and Manipal in India. Data were collected through onsite observations and Self-administered questionnaire surveys using 16 factors. The data from 100 household surveys were analyzed using descriptive statistics and compared for the variability of factors among low-rise and high-rise housing projects. The results indicate that health and wellbeing factors are rated differently in low-rise and high-rise housing projects. The factors such as indoor thermal comfort, adequate space for indoor physical activity, visual comfort and contact with nature, and maintenance issues are causes of lower satisfaction levels at the indoor level. On the outdoor level, Accessible Park/green open spaces for a physical activity near the house and, Ease of navigation and walkability in the surrounding area are two unsatisfactory factors indicating a need for design focus in these aspects. There are also some variations among the scores of low-rise and high rise in the indoor and outdoor categories. Based on the survey result, this study discusses some considerations for urban housing projects to improve the health and wellbeing of inhabitants.

Keywords

Housing projects; Architectural Design; Health and Wellbeing; Urban environment, Indian cities.

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Assessing Vegetation Changes of Kuala Lumpur Vacant Land Using NDVI Technique.

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Abstract

Intense urban land changes in cities worldwide are among the factors that contribute to diminishing forest land and biodiversity loss. Vegetative cover of diverse species and structures is crucial in ecosystem services such as carbon storage, carbon sequestration, and stormwater attenuation. However, the rapid forest loss causes irreversible environmental degradation, reducing these benefits' capacity. Kuala Lumpur is among the fast-growing cities in Southeast Asia, with shrinking green spaces as the city's vacant land is transformed into built areas. The remaining vacant land is awaiting development, left idle due to topographical limitations or held for strategic reasons. Previously, several studies have reported the abundance of vegetation on vacant urban parcels that can host many ecological functions. This evidence unveils an opportunity to expand urban green spaces by identifying vacant land with an increase in vegetative cover as potential areas for urban greening. Hence, this study aims to assess vegetation changes within Kuala Lumpur's vacant land between the years 2018-2021 using the Normalised Difference Vegetation Index (NDVI) technique. Results revealed that 65.4% of these plots show accretion in vegetative cover, indicating the potential of these parcels to be conserved for ecological functions. The findings of this study will assist relevant authorities in performing a desktop study to identify areas with vegetative cover accretion to prioritise conservation efforts. Subsequently, it is hopeful that this study will prompt the development of tools to assess vacant land ecological values on the ground as the next step for urban green space conservation.

Keywords

urban vacant land; urban greening; NDVI; green spaces.

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The Resilient Stories of Residents Participating in Community Gardening from Public Housing Programme in Kuala Lumpur

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Abstract

The current COVID-19 pandemic has prompted cities worldwide to implement various pandemic mitigation measures such as lockdowns and physical distancing. The mitigation measure meant to curb the pandemic has been argued to be affecting the health and well-being of the city population. Before the pandemic, research in Kuala Lumpur has shown that many of the urban population, especially in a public housing programme meant for the lower-income group, have experienced numerous socio-psychological complications such as anxiety, depression, and stress. However, despite these challenges, numerous public housing residents have continued participating in a community gardening initiative, thus triggering an interest in exploring the residents' social characteristics and stories. The study has captured participants' age group, gender, job, commitment to participation and other relevant information through semi-structured interviews. Recruitment of the participants is made through multi-stage sampling, purposive sampling, and then snowballing sampling. The interviews revealed that most participants are retirees and homemakers, with a balanced number in gender composition. The participants are primarily elderly, from the 60 to 75 age bracket, and only a few are within the 40 to 50 age bracket. The amount of time spent on the community garden is vastly different among gender, with men spending their day at the community garden more than women, and the interviews revealed why. The study found that working people spend less time in the community gardens. The study believes the documented social characteristic background and their stories could provide researchers, policymakers, and local authorities with critical information, such as the community needs and strengths, to drive planning, policy development and decision making toward a sustainable lifestyle.

Keywords

Lower-income group; Participation; Social characteristics

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People Oriented Development: rethinking the links between the Sustainable Development Goals and Transit Oriented Development, through a case study of Quito, Ecuador

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Abstract

One of the pillars of the Sustainable Development Goals (SDGs) is the idea that the eradication of poverty and inequality is possible through economic growth. The baseline of economic growth relates strongly to the Transit Oriented Development (TOD) framework, which contains a consolidated financial model for urban development. In this paper, we examine the synergies and conflicts between SDGs and TOD. By doing so, we highlight how, although the SDGs ultimately strive to eradicate poverty, TOD fails miserably on this front.

The findings are the result of the analysis of TOD in Quito, Ecuador, which has had a notable influence by TOD in its urban legislation, since hosting the Habitat III conference in 2016. The case study reflected the synergies and conflicts between the SDGs and TOD. In addition, we argue that certain aspects of the Quito study challenges the very concept of development through economic growth (promoted by the SDGs), or having fast urban economic centres (pushed by TOD). We argue that instead of trying to force local needs to be in accordance with the SDGs or TOD, a new approach should be adopted that is centred around people.

We call for a shift in discourse: from a strong focus on infrastructural development, fast access and economic growth, to discussing forms of urban living. This paper defines such a shift in discourse, research and urban planning as People Oriented Development.

Keywords

Sustainable Development Goals (SDGs); Transit Oriented Development (TOD); Inequality; Latin America; Quito; Ecuador

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Assessing university students' satisfaction with the urban design of the open spaces attached to their on-campus housing: A case study

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Abstract

Students' housing has become an essential facility in most universities as it offers to students an opportunity to study, live, and interact. Open spaces constitute a main component of this environment including landscape features, green spaces, and sport facilities. This research aims to evaluate students' satisfaction with the open spaces embedded in their housing environment. The study examined several open spaces design aspects and considered the campus of King Fahd University of Petroleum & Minerals (KFUPM) in Saudi Arabia as a case study in this regard. Quantitative and qualitative data were collected using site visit observations and a questionnaire survey of students who live on campus. Results showed that students are mostly satisfied with the urban design of the examined open spaces. The most appreciated urban design aspects were accessibility and proximity to students' dorms, quietness, and safety and security. Other aspects that require further improvement from students' view point were quality of supporting services, and the need to improve thermal comfort conditions. The research outputs are recommended to students' housing developers, designers, and care takers to make the living experience of students' housing more efficient, attractive, and positively impactful.

Keywords

Open spaces; Outdoor environment; Students' housing; Students' satisfaction; Urban design

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Study on improving lighting comfort and energy saving of artificial lighting in university classroom based on analytic hierarchy process

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Abstract:

For the heavily used university classrooms, both lighting comfort and artificial lighting energy saving are very worthy directions to explore. In this paper, we take a university in Hangzhou, China as an example, and determine the basic parameters and dimensions of typical classrooms through field research of typical classrooms in this university. According to the local building standards and actual measurement data, simulation schemes with building base dimensions (plan depth-width ratio, area, actual floor height) as variables are formulated, and simulations are carried out using honeybee and ladybug to obtain simulation results data related to lighting comfort and artificial lighting energy saving. And in order to evaluate the simulation results more intuitively, this paper transforms the qualitative analysis of general simulation results into quantitative analysis by the analytic hierarchy process (AHP), which is one of the scientific methods for determining index weights. Finally, the optimal basic dimensions of university classrooms for lighting comfort and artificial lighting energy saving in hot summer and cold winter areas are obtained.

Keywords

Natural lighting; Building energy consumption; University classroom; Analytic hierarchy process; Artificial lighting; Weighting

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Quantitative Analysis of Carbon Emission Reduction from C&D Waste Recycling in Construction Industry of Kitakyushu, Japan

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Abstract

Japan has made a legislative commitment to achieve carbon neutrality by 2050, with cities as the basic unit for achieving this goal. The construction industry in Japan has shared with 30% of the carbon emissions from all the sectors. Therefore, construction industry is one of the key sectors to achieve carbon neutrality in Japan and has great potential for emission reduction. Less attention has been paid to the emission reduction of the building demolition stage compared to other stages of the building life cycle, especially the recycling of construction and demolition (C&D) waste. This study aims to fill this gap by quantifying the carbon embodied in recycling C&D waste based on the Life Cycle Assessment (LCA). Japan's decarbonization pioneer, Kitakyushu, has been selected as a case study as a typical city. It is estimated that Kitakyushu generated 1.28 million tons of C&D waste in 2019, of which 0.83 million tons of building material waste is transported off site, it implies an embodied carbon reduction potential of 45,776
tons carbon emission. This study also compared the carbon embodied in the new and recycled materials. In the case of 2019, the Kitakyushu recycled 0.81 million tons of construction waste at a cost of 34,941 tons of carbon emissions, and the construction industry reduced its carbon emissions by 9,880 tons compared to the new materials. Emission reductions are mainly driven by the smelting of recycled steel, wood, plastics, paper, and gypsum board recycling, which all contribute to carbon emission reductions. The recycling of waste concrete blocks and mixed waste into aggregates does not utilize carbon emission reduction. This study shows that C&D waste has a great potential for reducing carbon emissions and can be applied to other cities to help them achieve carbon neutral.

Keywords

Carbon emission; C&D waste; Construction industry; Recycled materials

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Based on the Spatial-temporal p erspective, Analysis of the characteristics of urban household energy consumption in East China

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Abstract

Household daily activities consume huge amount of energy, comprehend, and quantify the key influencing factors of energy consumption is crucial to promoting household energy conservation and emission reduction. This paper examines the urban household energy consumption in east China as the research object, based on the data of China Energy Statistics from 2010 to 2019, this paper analyzes the change in fuel use structure of urban households in East China. At the same time, establishes the energy consumption calculation model, the provincial data such as home appliances penetration, the annual average time into account. The household energy types are divided into five sectors: kitchen/hot water, heating, cooling, lighting, and power according to their final consumption paths. Analyzes the characteristics of the actual energy consumption on the urban households. Finally, Compared the differences of energy consumption in each province. The main results are as follows :(1) With the strengthening of national energy conservation and emission reduction initiatives, the household fuel use structure develops towards the direction of "gas + electricity" cleanliness; (2) As a large province with rapid population and economic development, Shandong has the highest total household energy consumption. (3) In terms of final consumption path, the kitchen/hot water is the largest part of household energy consumption; (4) Due to the cold winter temperatures in Shandong, urban central heating consumes a large amount of energy. (5) As living standards become more affluent and housing conditions, the consumption of electricity for power and lighting has increased rapidly.

Keywords

household energy consumption; East China； the calculation model; end-use;

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Living on water and land: Challenges and opportunities for the development of Amphibious Communities in the Peruvian Amazon Rainforest

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Abstract

Loreto is the largest Amazon region in Peru. More than 200,000 riverside inhabitants live in traditional rural communities adapted to an amphibious lifestyle, with houses that rise or float on the river in times of flooding and perch on the riverbed in low water times. However, these amphibian communities are not exclusive to rural areas. Iquitos, the capital, is surrounded by alluvial plains whose landscape changes with the seasonal dynamics of its rivers, where more than 90,000 people live on the water and are carriers of social, cultural, and environmental resources. However, its poor infrastructure conditions and limited resources affect the ecosystem and the population's health. The objective of this qualitative study was to understand the physical, sociocultural, and environmental conditions in which these communities live and identify the political, legal, and cultural barriers that prevent healthy urban development. Data collection was through semi-structured interviews, surveys, and observation of physical and environmental conditions. The results suggest conflicts in the formalization processes, from administrative and legal aspects to a limited definition of habitable territory. Also, we identified the benefits of the current urban-architectural conditions of these communities, whose housing typologies, adapted to the seasonal change of the rivers, can provide an alternative model to adapt with resilience to the impacts of climate change. On the other hand, we identified challenges in sanitation, accessibility, public space, and strengthening of community networks, among others, as well as challenges in the response of the State whose proposals for relocation have not considered communities' economic, social, and cultural aspects

Keywords

Built environmental; Urban resilience; Amphibious communities; Peruvian Amazon.

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Neighborhood Impact Assessment an urban sustainability instrument: analysis in medium-sized cities in São Paulo, Brazil.

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Abstract

The Neighborhood Impact Assessment (NIA) [1]is an important instrument of the Brazilian Urban Policy enacted in the City Statute, Federal Law 10.257/2001. Considered by the national academic literature as a relevant instrument for local urban environmental management. However, in Brazil, the understanding that the environmental and the urban are part of the same context is not yet a reality within the local public administration sectors, with a deep disconnection of management and governance between the urban and environmental departments. The objective of this work was to analyze the application of NIA in medium-sized cities in the state of São Paulo and to evaluate its contribution to the local urban environmental management of these cities. We also intend to evaluate the NIA integration with other sectors of local public management such as the environment, urban mobility, social housing, etc. As a methodology, we used NIA Process Components, verifying the absence or presence in the urban laws of four (04) medium-sized cities in the state of São Paulo. We also interviewed civil servants from the environmental and urban sectors, supplementing information that was absent in laws and official documents. The results reveal that most municipalities do not have a specific law that regulates the NIA, and Master Plans, Land Use and Occupation Law regulate this instrument. Civil servants emphasize the weaknesses and strengths of the instruments. As potentialities of this instrument, they observed public participation, increased state control in environmentally sensitive areas, greater urban-environmental compensation mechanisms, and so on. Weaknesses signalize were: conflicts involving urban land subdivision, interference of the real estate market in the use and occupation of urban land, changes in the Master Plans by the city councilman aiming to meet the interests of private financial capital. The four cities, which are part of the Case Studies, have not yet effectively incorporated elements of climate change in their local governance. Issues related to social housing, expansion of slums, occupation of protected environmental areas by poor populations are still the most urgent priorities in these cities, as well as in many Latin American cities. The improvement and advancement of the articulation of the urban and environmental sectors in Brazilian cities must require thinking about better scientific methodological and governmental improvements.

Keywords

Neighborhood Impact Assessment; Latin American cities; Medium cities.

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[1] Brazilian authors often use the terminology in English “Neighborhood Impact Study”. However, we chose to use “Neighborhood Impact Assessment” according to (Abiko & Barreiros, 2014) to facilitate the understanding of the instrument for the international audience, as it has similarities with the Impact Assessment. However, in Brazil, the NIA is known as the “Estudo de Impacto de Vizinhança”.

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Social-environmental Characteristics of Community Gardens in Public Housing Neighbourhoods in Kuala Lumpur.

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Abstract

Prioritising nature-based solutions for urban design and planning agenda is vital to preparing cities for the future, despite the scarcity of vacant lands to cater for it. In addition, limited knowledge of how vacant lands are used in practice and how they serve the urban communities is also hampering the agenda to bring more nature into the cities. Previous studies found that vacant lands have been utilised as community gardens, art spaces, pop-up stores, parks, parking areas and sports fields. Hence, the research is interested in focusing on the community gardens, which have long been promoted as capable of providing places for people, especially the lower-income population, with opportunities to be physically active, meet others, and improve access to healthy foods. The study has explored vacant lands used as community gardens in public housing neighbourhoods in Kuala Lumpur using Google Earth, Google Street View, site visits, interviews and archival information. The study has mapped the areas of the community gardens using ArcGIS Field Maps. The study also collected data such as land ownership and its association, population density, median income and proximity to improve our understanding of the social-environmental characteristics of each community garden. The study found that the community gardens' sizes, type of farming and how it is run vary from one public housing to another. As the public housing is of strata type, the population density is relatively high, with the median household income being RM2,233.00, which is below the living wage, which is RM2,700.00. The study believes the mapping and the development of a database characterising the community gardens' social-environmental characteristics enable researchers, policymakers, and local authorities to effectively plan, develop and decide on the use of vacant land while supporting nature-based solutions for the cities.

Keywords

Public housing, vacant lots, mapping.

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From car-oriented development toward a bicycle friendly environment. A case study in the Mugello Valley in Tuscany

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Abstract

Among the major European countries, Italy is the one with the highest motorisation rate, equal to 67 privately owned vehicles per 100 inhabitants.

A peculiar kind of settlement, resulting from the development of road infrastructure that since the 1950s has gone hand in hand with the country's economic growth, is represented by small urban centres along the motorways, which have experienced a significant development in industry, logistics and large-scale commercial distribution without becoming a city.

An emblematic case is Barberino di Mugello, a centre of mediaeval origin with a population of 10,000 at an exit of the A1 motorway between Florence and Bologna, which can be characterised as a sort of archipelago of segregated monofunctional "islands" in a hilly landscape, connected and separated by road infrastructures.

The paper focuses on a project commissioned by the municipality of Barberino di Mugello to a research group of the University of Florence, which aims to mend the scattered urban islands through a network of bicycle paths, using a park and ride lot at the motorway exit as the new 'urban gateway' for Barberino.

The aim of the project is twofold: to promote sustainable mobility as an alternative to the use of the car also for short internal travel, and to let recognize, through the bicycle route, the remarkable landscape resources of the area.

Keywords

Bikeability, Urban planning, Landscape design, Road infrastructure

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The preliminary impact of mega events on sustainable development in the eyes of youth: The case of Dubai World Expo 2020

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Abstract

The recent witnessed first in the region Dubai World Expo 2020 six months mega event, represented in nonstop activities, events, forums, and various cultural experiences, requires multiple in-depth studies to grasp its unfolding lessons. Dubai World Expo 2020 's theme, "Connecting Minds, Creating the Future," was the premise that people and ideas coming together in novel and unusual ways lead to creativity and development. This study attempts to explore the impact of Dubai World Expo 2020 on youth perception of world spatial sustainable development and challenges. The primary focus of this study is to identify the consequences of such mega-development on the future of the city based on different attributes such as career path, network, attraction, identity, and innovation from the future leader's perspective. The study adopts a qualitative case study method utilizing interviews and observations as investigation tools. Moreover, a literature review involved exploring previous mega-events and secondary sources to identify existing data of youth visits context. This review is crucial in driving the intertwined relationship between space and people in future development. The expected contribution of youth requires shedding the light on their perception and how they encounter such mega event in relation to the future city image and development. Expected findings lie in the identification of lessons that can be applied in future spatial development. The outcome of this pilot study contributes to understanding youth engagement in sustainable planning and raising awareness as a participatory approach influenced by the recent mega-development. Also, the study largely contributes to the UAE' vision to engage the youth in national development along with adopting SDGs 2030 agenda in different themes including peace institutions, economic development, innovation, engagement, environmental preservation, and social empowerment.

Keywords
Dubai World Expo 2020, Mega events, Sustainable development, Youth, UAE

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Evaluation of Spatio-Temporal Patterns of Connectivity and Settlement Growth in an Aerotropolis

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Abstract

Envisioning the ever-increasing importance of the airport, not only as a hub for human movement and its immediate ancillaries but also as a focal point of inducing development which embraces massive conurbations and concomitant support services. Despite these speculations, there is a probable long-term projection linked to particular aerotropolis as inputs indicate a more uncertain outcome. This paper seeks to identify factors likely to impact the aerotropolis, especially from a viewpoint of policy and planning. The rationale for focusing on these areas is to find the impact of change in landside connectivity in an aerotropolis on the settlement pattern. In order to explore the objective, the application of GIS, as well as statistical analysis, has been done for the case study of Bagdogra Airport, West Bengal, India.

The direct, indirect, and induced effects of an airport on the area's economy encompass well beyond the airport city. Landside network effects are produced by airports serving as a CBD area, especially particularly in the context of air travel. Methodologically, the paper tries to identify the change in various types of socio-economic and demographic factors to find out the impact of change in connectivity on settlement patterns in the region.It can be clearly seen that major airports are undergoing a transition from the status of airport cities to that of new focal points in the metropolitan regions for the development of regional infrastructure. Given that the location of the airport in relation to the primary city centre is now considered to be of less signficance than the airport's strategic position within the context of the region, the catalytic impacts, which imply that the airport's influence extends well beyond the city and the city region, are the outcome.. Therefore, there is a dire need for planning interventions in order to plan comprehensively for the upcoming Aerotropolis so as to avoid haphazard and unplanned growth deprived of the benefits of the airport as a development-inducing node.

Keywords

Aerotropolis; regional development; connectivity; settlement pattern;

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Experimental co-design with a ludic urban community. The safeguard of the identity of Vale do Anhangabaù as a skateboarding spot.

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Abstract

The paper proposes a reflection on the role of expermental co-design methodologies in mediating between top-down and bottom-up forces that shape current urban public landscapes, and their ability to listen and 'translate' the voices of resident communities, allowing them to intervene and influence decision-making processes in the urban regeneration of emblematic places in the city.

Specifically, we intend to reflect on the dynamics of appropriation of public space as a result of certain 'urban play' practices, in particular skateboarding, as well as on the role of designers and administrations in involving stakeholders in a co-design process so as to include these practices in urban transformations. To this end, the recent and emblematic regeneration of Vale do Anhangabaù in Sao Paulo, a symbolic place for the local skateboarding community, is analysed as a paradigmatic case to highlight the complex and stratified field of interests, disputes and struggles underlying and determining the transformations of contemporary metropolitan public spaces, as well as the role played by the discipline and practice of urban design in mediating and recomposing these often opposing drives.

Moving from this particular case, the paper intends to highlight the relevance of the occurrence of unexpected events during an urban transformation process, and to reflect on the construction phase as a crucial moment of negotiation and mediation between the stakeholding parts. The analysed case is a very relevant and at least partially virtuous example of application of a co-design methodology at the urban design scale, intended as a practice that promotes a social sustainability of urban transformation by favouring greater social cohesion and granting participation of the public in the processes that give shape to the urban space.

Lastly, the paper reflects on the differences between the 'classic' methods of participatory design in comparison to more recent and direct co-design strategies that take place during the construction phase, suggesting the possibility of including this kind of processes in the general planning of this kind of urban interventions.

Keywords

Urban Design; Public Space; Bottom-up Practices; Participatory Processes; Urban Play; Skateboarding

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Metric Analysis of Superblock Street Network Designs. Implications for Supporting Non-Motorized Travel and Land Use Planning Strategies

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Abstract

A common urban development strategy in the United Arab Emirates (UAE) and the Gulf Cooperation Council (GCC) countries is based on the use of superblocks. Superblocks are large tracts of land, with sides of approximately 900 x 600 meters, developed following the principles of Perry's Neighbourhood Planning Unit. Several street network designs are used to structure the superblocks, creating different connectivity and accessibility conditions for their occupants. This paper evaluates these networks, to better understand their potential to support non-motorized movement and to outline land use planning strategies. Eight superblock network designs are evaluated by measuring distances in meters between a controlled set of origins and destinations. Origins correspond to residential plots of each superblock, while selected locations on their periphery correspond to potential non-residential destinations. Results indicate that the various designs studied provide relatively similar metric accessibility conditions between origins and destinations, despite having markedly different network designs. However, results also indicate that, given their geometric properties, accessibility is distributed unevenly between some superblock edges and corners. Lastly, the study indicates that the length of the different road networks plays no significant role in enhancing access to potential destinations. The paper concludes with a discussion about the ability of these results to inform urban development policy. Particularly with regards to the development of neighbourhoods built using aggregations of superblocks and the role of the street networks in structuring movement, supporting land use planning, and their development costs

keywords

Superblocks; Metric analysis; land use regulation; neighbourhood planning; UAE; GGC

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Evaluating Livability of Streets: The Case Study of Alnahar Street in Baghdad

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Abstract

One of the most important qualities of traditional bazaars, which were initially established and well-known in Arab Islamic cities, is the livability that represents the urban daily life of these suqs (marketplaces). These bazaars were often formed by traditional organic streets and included the urban hub of social and commercial activities. However, these kinds of traditional streets had been subject to modern planning practices due to adopting the modern models of urban development and extension, in particular in the Middle East region. AlNahar Street, which was by Ottomans and local elites founded in the historic core of Baghdad in 1910, has considered one of the most attractive traditional urban places, in which many local goods and hand-carts are sold out or repaired. This street witnessed many dramatic changes that impacted its functionality and then its livability. This research is focused on studying the social, cultural, and commercial changes, which were not only impacted the livable quality but also influenced its spatial identity and social community, and assessing how these different variables involved in the urban deterioration of its spatial conditions. After reviewing the existing literature, the research finds that there is a remaining question: what impacts the livability of AlNahar Street? Methods employed questionnaire techniques and interviews to study the selected samples, including goldsmiths, artisans, technicians, and shopkeepers who are still working there. The importance of this research comes from the fact that this traditional Bazaar is a focal historical point for producing unique local handcrafts and goods that will enrich the Iraqi culture and promote the Iraqi heritage as well as involve to develop the tourism and economy.

Keywords

Livability, Traditional Bazaar, hand-crafts, spatial identity, social communities, historic core

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The obstacles of multimodal walking among university students at the department of architecture in Algiers city

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Abstract

The most important transport mode in the city is walking because it symbolizes the link between all the other modes. The concept of "multimodal walking" appeared because walking remains difficult to address once we go beyond the local scale. This concept means walking combined with another transport mode.

In Algeria, usually university students travel by mechanical means. The travel policy consists in using a multimodal system that reorients all the users to alternative modes of the automobile such as walking and public transport, to reach a sustainable development.

Public transport's image is so devalued in Algeria and walking remains underestimated. In fact, for users, using this transport mode is much more a necessity than a choice.

Our problem in this paper is to define the obstacles of multimodal walking as a sustainable travel mode among students.

By analyzing the pedestrian routes that connect universities and public transport stations, the behavior of students (pedestrians, multimodal walkers), we defined the obstacles of multimodal walking among university students. We divided them on four categories: The physical condition, Hygiene, width and security.

Keywords

walkability; multimodal walking; multimodal pedestrian; modal choice; student; universities

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Determining Future Drivers of Local Urban Climate of Lahore by using Remote Sensing Techniques

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Abstract

World's mega cities are urbanizing at the cost of prime green areas around the city's outskirts. Urban area's local climate is adversely affected by the land use change pattern such as smog events occurs in developing metropolitan cities due to loss of agricultural land. Severe environmental challenges are being faced due to increasing urbanization trends, which need to be predicted in the future years. LULC change determination with the help of Landsat enhanced thematic mapper from the past years to the present (1996 – 2022) is done along with operational Land Imager (OLI). Correlation between the Normalized Difference Vegetative Index (NDVI) and the Normalized Difference Buildup Index (NDBI) with the LST are used to understand the spatial urban variability in terms of surface urban heat island effects. Concrete structure and haphazard development have been increased dramatically which led to decrease in the vegetation of Lahore. There is a demonstration of 5.49% decrease in green areas, 11% decrease in barren land and 1.5% in water bodies while 16% increase occurred in buildup area. Future local urban climate of the city is predicted in terms of UHI through LULC for different years and for the future 2035 with the help of Artificial Neural Network-multi-layer perception model run with the help of MOLUSCE Tool in QGIS. There is a prediction of rise in temperature of 2^{o}C with the decrease in overall of 3% in the green cover area around the city which need to be addressed by the city management for taking preemptive measures for sustainable urban development.

Keywords

LULC Prediction; Urbanization; Urban Heat Islands; Local Climate Change

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Maintaining Cultural Heritage Through Adoptive Reuse: The Case of AlMughesla in AlMadinah AlMunawarah

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Abstract

This study focuses on one of the remaining historical buildings in Almadinah Almunawarah - the Prophet city - in Saudi Arabia that known as Qal at alMughesla (alMughesla Fort). The building was built around a hundred and seven years ago outside the ancient city walls. Fifty years later, the function of Qal at alMughesla was changed, and it was used as a residence by one of the families known as Bait Al Daqaq. Nowadays, the building is distinguished by its location as well as its type. It is located in the center of alMughesla neighbourhood on top of a hill. However, this timely analysis highlights the building's type and exact function to narrate its historical background. The neighborhood is nine kilometers away from the Prophet Mohammed Masjid (AlMasjid alNabawi). The neighbourhood has a valuable historical background as it was inhabited by the maternal uncles of the Prophet (peace be upon him). This historical dimension starts from the building main function to the suggested proposal to reuse it sufficiently. More importantly, the study analyses the building layout and construction, including its materials and the main features of such function. It highlights the timeline of the usage of the building to understand the historical layers which leads to the possible reused opportunities. It also exemplifies a lesson to the current generation on how to maintain architectural heritage, and to value and appreciate local culture. Conclusively, the study is not for the sake ofrepurposing an existing structure for new uses or for economical purposes only. It is a new lens to observe local neighbourhood and to bring it to sustainability level through adaptive reuse of the remaining buildings. Primarily, it is to reinvent historical buildings and preserve original architecture to maintain heritage.

Keywords

AlMadinah; AlMughesla; Reuse; Historical buildings; Cultural heritage

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Part II
Past and Future: City's Image and Preservation

Application of Terrestrial Laser Scanning Technology in Drum-tower

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Abstract

In order to conserve architectural heritage, taking a Drum-tower in Guizhou province as an example, point cloud data were acquired and processed using Terrestrial Laser Scanning technology. Firstly, the drum tower and Terrestrial Laser Scanning are introduced and the preliminary survey preparations are made. Secondly, point cloud model were formed from the data collected during data acquisition to the point cloud data preprocessing in the later stage. Finally, compared the formed point cloud model and the two-dimensional image, analyzed and discussed, the corresponding skills in model acquisition are proposed. The application results show that Terrestrial Laser Scanning is suitable for buildings with geometric features such as Drum-tower, which accurately expresses the three-dimensional effect of point cloud model and provides data basis and three-dimensional information services for the recording and virtualization of architectural cultural heritage.

Key words

Terrestrial Laser Scanning; architectural heritage; Drum-tower; point cloud;

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Sustainability in the Fashion Industry: Strategies to Minimise the Carbon Emission

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Abstract

Green manufacturing is the reduction of hazardous substances in the process of designing, conversion and life cycle of apparel products, which may affect the domain of environment and lead towards global warming. It generally related to broad area including water, air and land pollution, energy efficiency and usage, waste generation and recycling. It is well known fact that generation of greenhouse gases, which are measured to calculate the carbon footprint majorly affect the global warming. Hence to save the environment, it is most significant to decrease the carbon footprint of a particular sector. Since the Apparel & textile Industry in India is one of the most important industry in respect to employment generation, earning of foreign currency and hence contributing very significantly in the growth engine for the nation. Also, in the recent year's industrialist as well as academician are raising their concern towards the scare situation of the global warming and hence the carbon emission of the textile & apparel industry is becoming the one of key concern for all the stakeholders. Despite the significant relevance of the subject, a concrete analysis of the situation is lacking even though there is remarkable fact-finding work going on for controlling the carbon footprint in different arena of the manufacturing industries, but in respect to apparel & textile industry not much research has been reported. Considering India as an industry-based nation and a bigger contributor in the green-house gases, there is certainly a need of the system to minimise these emissions. This research work is focused find out the various tools & techniques to control the emissions of greenhouse gases in apparel and textile industry.

Keywords

Green Manufacturing; Environment; Carbon emission; Apparel Manufacturing

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The cultural and tourist development in Venice

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Abstract

Venice is a city of unique beauty in the Mediterranean basin. Originally, Venice is famous for its history, culture, design, and architecture. The city is a cluster of islands, connected to the mainland side by the bridge of freedom. The methodology of the work was based on the study of the advantages of the city for its development as a romantic tourist destination. Modern technology makes the city safe. The protection of residents and the preservation of buildings are imperative and necessary. In recent years, there has been significant progress in the safety of tourists. Then, there is the danger of over-tourism development, because it alters the everyday life and the pace of life of the permanent residents. Venice is in transition. The important element is adaptability to modern requirements. The proposal of the work is summarized, in the message that Venice can gain sustainable development in synthesis with tourism, the daily routine. Residents, tourists, and holidaymakers are important to obey political norms. The categorization of tourist flows, by day, age, and type of tourism creates safety not only for tourists, but is the same for residents. Tourism and cultural planning in harmony with solidarity, respect, the European air, equality, freedom defends a modern European and international future for Venice.

Keywords

Venice, Sustainable development, Tourist

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The Relationship between Urban Identity and Urban Migration | Investigating City's Image, Values, and Identity in Kabul city, Afghanistan

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Abstract

Afghanistan's population is suffering from four decades of conflict, environmental and natural disasters, rising poverty, informal growth, climate change, and COVID-19. Over the last decade, Afghanistan's cities have been quickly developing, particularly Kabul, the capital and largest city, which has seen significant population expansion as a result of internal and external displacement and urban migration. Internal and external urban migration has impacted Kabul's urban structure and pattern, resulting in a huge number of informal neighborhoods and settlements. The fast growth of informal neighborhoods, which now account for two-thirds of the city's population, has had an impact on the city's visual identity in both historical and current urban patterns. Also, formal housing has an inadequate architectural design, quality, and durability and is planned without attention to architectural identity, sustainability, and affordability. The modern process of urban expansion and housing has affected the city's image, values, and identity by constructing and importing foreign architectural designs that have no correlation with vernacular and identical Afghani architecture. As a result, this study investigated aspects of the city's identity and the effects of urban displacement on Kabul's urban image in the studied districts. With analysis and discussion of urban identity and its relationship with urban migration, this research conducted case studies in three districts of Kabul city and deliberated its impact on the city's identity of Kabul urban areas. This research significantly examined the parameters and elements that affected the urban identity of the city in terms of social and environmental identity. The study's main finding was that missing the essence of architecture planning and design, misuse of construction materials, construction methodology, and site location, neglecting the traditional architecture and ignoring all the main components of urban identity in a city affected the urban image of the studied areas.

Keywords

Urban Identity; Informal Neighborhood; Sustainability; Vernacular

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Manohar Canal of Chittagong, Bangladesh: Conceivable Methods to Rejuvenate a Historic Canal and Improve Waterfront scenario

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Abstract

The sustainability of a community is precisely tied to the quality of life of the city. In enhancing a city's livability; the importance of canals has always been emphasized. Yet there has been a lack of awareness in Bangladesh as to how the canals will help boost people's social life and the urban environment. Many of these ignored channels also have historical value and are now slowly dwindling. Manohar Canal is such a canal that has been destroyed over the years and almost lost its course being invaded by the ever-growing Sadarghat area's urban jungle. While the canal front is mismanaged and inaccessible, given the local context, it can be converted into its glorified state, and can be used as a means to enhance the urban life of the area. This study shows the canal's current physical condition and its adjacent area; describes the canal intrusion process; shows Karnafully River's waterfront scenery near Sadarghat jetty. It also offers potential solutions to restore the historic Manohar canal ensuring the least harm to existing infrastructure and enhancement of the standard of life and encouraging smooth water flow that can mitigate water clogging of Sadarghat area.

Keywords

Canal Rejuvenation; Manohar Canal; Quality of life; Urban Waterfront

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The trace of the city's structure. The evocative representation of settlement through the montage technique

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Abstract

In architecture it is now a consolidated practice to involve a process of critical approach and historical knowledge before the design phase. This need is even more evident in reconstruction contexts, such as the Old City of Mosul, where the project is required to return some of the city's identity features. That practice, conventionally understood as the passive collection of data, is however susceptible to a more active approach, the production and interpretation of a conceptual and abstract condition of the city, capable to also capture the data not immediately visible and latent. Mosul presents an urban structure composed essentially of primary monumental elements around which spontaneous residential fabrics have developed, almost disordered in their overall appearance as a solid mass, only excavated by open spaces. The proposed experiment concerns the creation of a cognitive map, a virtual state that recognizes and enhances the generative settlement structure of the city starting from certain type-morphological invariants – the introverted character of the enclosed settlement; the structure of compensatory open spaces such as courtyards and patios; the density of the settlement with a prevalent horizontal development; the scalarity and hierarchy between public and private spaces; etc… – that identifies and represents the modalities of an otherwise indeterminate spontaneity. The result is the reconstruction, or reinvention, of the meaning of places through a methodological instrument of investigation suspended between the recognition and interpretative condition of a survey and the limit structure of a possible design conformation. If the reconstruction cannot be satisfied with mimesis but requires an evolutionary and transformative vision of the city, this tool is configured as the link between identity and transformation, a synthetic act between knowledge and the inductive capacity of the project to emphasizes some of the authenticity assumptions of memory, even in an evocative and conceptual reworking.

keywords

Mosul; Reconstruction; Virtual state; Montage; Settlement Structure; Cognitive map

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Creating City Image and Identity Through Urban Branding Case Study: Port Said City Waterfront

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Abstract

A new approach to the urban development of cities is urban branding. It enhances the city's image by translating its visual image into a brand image. Recently Port Said city's visual image and identity in the form of its waterfront are no longer clear it is almost disappearing. Therefore, this paper focuses on city urban branding as a powerful mental image-building strategy to improve Port Said city's visual image and clarify its identity by creating a clear mental image of the city through its waterfront. The study is based on theoretical, analytical, site visits, interviews, questionnaires, and applied studies.

The framework covers principles that manage branding and image-creating elements. The case study of Port Said city will be presented, followed by a conclusion and recommendations demonstrating how to restore Port Said city's image and identity.

Keywords

Port Said city waterfront; Urban branding; City image.

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A Study on the Renewal and Development Strategy of Veranda in the Historic Center of Macau

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Abstract

Veranda refers to a building with arcade and store on one or both sides. In China, it refers to the open corridor style buildings that have emerged in the 19th century, blending Chinese and Western styles. This paper first introduces the process of historical changes and the current development of veranda in the historic district of Macau and discusses the constraints of the current development. Based on the case study, the analysis compares the revitalization cases of the veranda buildings in the historic districts of Hong Kong and Taiwan, as well as the analysis of the possibility of the regeneration of Macau's veranda buildings. It discusses the strategies for the renewal of Macau's veranda buildings, which provides a reference for the sustainable development of Macau's veranda buildings.

Keywords

Macau; Veranda; Historic District; Architectural Renewal

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A review of innovative materials for the design of adaptive biomimetic façades

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Abstract

For several years now, the debate on climate change has become increasingly central because of the consequences of climate anomalies for different sectors of human activity and the built environment. According to the latest Working Group 1 Intergovernmental Report on Climate Change (IPCC), the level of global warming can exceed 1.5°C in the coming decades. With the increase in the average temperature in the Mediterranean area, there will probably be an aggravation in the incidence of heatwaves and intense rainfall with significant repercussions in environmental, social, and economic terms. Therefore, solutions are needed to cope with these problems, and research lines are increasingly focused on the development of adaptive building envelopes to curbing the adverse consequences of climate change. The study refers to ongoing experimental research that aims to define an adaptive component, for continuous facade systems, using innovative materials based on the biomimetic approach. In this paper, the authors present some parts of their research results, where a necessary step was a systematic review of adaptive façade systems, whose variability is related to the intrinsic properties of the material they are made of. Assuming nature as a model, the authors study molecular-scale or nanomaterial materials that change their configuration and adapt to an external stimulus, organically and passively, without the requirement of sophisticated energy systems. For example, materials regulate their adaptive behavior through modifications that alter their interior structure, such as a temperature difference, or by exchanging energy from one form to another. Incorporating these biomimetic principles in the definition of the component can contribute to the design of sustainable architectural systems to "tune" the façade to changing external climatic conditions.

Keywords

Climate change; Biomimetic approach; Temperature control; Adaptive façades; Innovative materials

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Rescue Of Historical Natural Elements: Urban Design For The Recovery Of The Censo Ravine In The City Of Quito, Ecuador

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Abstract

Quito has a wealth of natural elements that over time have been consolidated as an important part of the city's landscape, however, they are in progressive deterioration due to the lack of awareness of all urban actors. The Censo Ravine is one of the most important natural elements in the city center since it has a historical value related to productive economic activities, however, it is in constant deterioration. This research has two objectives: the first demonstrated the current state of the ravine by applying the index of habitability of public space and the second is to propose an urban design project that seeks to regenerate this natural space, rehabilitate the historic infrastructure and generate new activities. The methodology that is applied has a mixed approach that allows, on the one hand, to collect information through interviews, surveys and the application of indicators and, on the other hand, to explore an urban design that obeys the previous diagnosis. As a result, it is found that the design of an active edge of the ravine can become a dynamic element and connector of the neighborhoods in the area, in addition to conserving biological diversity, encouraging the conversion of sustainable communities and reusing historic infrastructure to rescue the urban image of the area.

Keywords

Censo Ravine; Urban Design; Sustainability

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Waterfront redevelopment in deindustrialized areas: the role of social impact assessment for sustainable transition. The case study of Castellammare di Stabia's waterfront, Campania Region, Italy

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Abstract

Urban waterfront redevelopment and regeneration projects still are a topic of interest in urban planning and politics. Since the 1970s, numerous waterfronts all over the world have undergone a from industrial and/or logistics areas to commercial, residential, and recreational areas or green belts, due to de-industrialization and changes in maritime transport technologies.

Moreover, ecological transition returns to bring the focus of social, environmental and economic sustainability issues to the potential of waterfront areas. Mid-medium size cities, as the city chosen for the case study, represent a more challenging situation for multiple agents taking turns in planning decisions, fragmentation of development choices, presence of different authorities and multiple actors with no coherent and integrated approach, lack of financial resources and conditions of socioeconomic crisis.

The paper focuses on the case-study of Castellammare di Stabia, medium port-city in Italian Campania Region, lying between Naples and Sorrento Coast and close to Vesuvius National Park, where during the last decades many efforts have been made to redevelop the urban waterfront from dismissed warehouses and factories to tertiary areas to enhance its strategic position in Naples' Gulf. Nevertheless, the regeneration process is still largely incomplete, despite the involvement of public and private actors that have unmistakably conflicting interests. The municipality has been the center of many public-private-partnership programs funded and led by National Government, Campania Region, and local municipality, due to its condition of a complex industrial crisis area, but the conflict between entrepreneurs owners of areas and abandoned warehouses on one side and public actors on the other, has not yet been overcome. The paper analyzes different scenarios, starting from the involvement of Social Impact Assessment, based on public consultations with stakeholders and a financial analysis for the transformation of private areas. The assessment tool used is the Community Impact Evaluation (proposed by Nathaniel Lichfield since 1968), that has already widely considered for urban regeneration plans and policies, but poorly used for projects related to waterfront redevelopment. The paper aims to develop different alternatives and therefore to determine the full range of consequences to all community sectors for each alternative scenario; then analyze mitigation, adaptation or compensation measures for harmful social impacts. The innovative point of this paper is in re-proposing an existing tool of social cost benefit analysis and understanding that it can be aligned with the plans and programs integration measures required by Europe for sustainable ecological transition.

Keywords

Waterfront Redevelopment, Community Impact Evaluation, Sustainable Urban Regeneration, Social Cost-Benefit Analysis, Decision making processes

Evolving Urban Morphology And Climate Change Adaptation

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Abstract

As global carbon emissions continue to rise, and because of urban transportation-related GHG emissions, North American cities interested in meeting their climate goals requires rethinking dependence on annexation as a strategy to accommodate a growing population. Because of this pressure, in Canada, municipal development policies are shifting to include retrofitting suburban neighbourhoods. However, not every neighbourhood maintains the same capacity to absorb increased population numbers, nor do existing land uses and morphology necessarily complement climate change mitigation and adaptation objectives. Optimizing re-development to benefit as many residents as possible, both current and future, requires leveraging existing strengths found within the fabric of established morphology – a morphology often rooted in the past and created by a society with different priorities, technology, norms, and policies. In this way, morphological legacy inadvertently renders residents vulnerable. Given the comparably short history of urban development in the Canadian West, resilience – defined here as the capacity to remain functional in the face of stressors or events – is further compromised by development uniformity.

This research explores legacy morphology from the perspective of emergency access for residents. Using geospatial analysis of neighbourhoods from six different decades in Calgary, Alberta, Canada, we map and analyze 800-metre pedestrian routes beginning from three key 'emergency' amenities using a 5A standard (All Ages And Abilities Always). This standard requires that routes are paved, separated from vehicle traffic, and are supported through complimentary infrastructure (sidewalks, painted crosswalks, or flashing lights). The research reveals that shifting municipal development policies over several decades has negatively impacted the proportion of households with 5A access to key amenities. Further, results reveal that other walkability metrics, such as WalkScore™, or more design-related measures such as block length or intersection density fail to consider active modes from a climate vulnerability and/or dysfunctionality perspective.

Keywords

Retrofitting; Climate Change Resilience; Urban Morphology; Adaptation

The Application and Function of Color in Urban Space, (Case study of Amirchakhmaq Square, Yazd, Iran)

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Abstract

Urban spaces are places for social life. The façade is one of the physical elements of the urban space that affect the observers at the very first stage. The external expression of the buildings creates the first and perhaps the most important impact where the colors play a significant role in perceiving the urban space. Although nowadays we can see our urban facades as either colorless or chaotic, colors have had major importance in Iranian architecture. This qualitative research has implemented the case study strategy, and the objective is to understand the application and function of color and their alignment with the urban square's definition and urban design principles. The language of the urban design principles is adopted from Carmona's urban design dimensions. In doing so, Mirchakhmagh square in The Old City of Yaz, Persia, (registered by UNESCO as a World Heritage) has been analyzed. It is found that the application and function of the colors in the historic part are significantly corresponding to each other, however, in the contemporary part, the lack of this adjustment has made the overall facade less balanced. Moreover, the major application of colors is in the vertical rhythms and facade openings like shops' entrances. Furthermore, the major color functions based on Carmona's urban design dimensions are to distinguish, emphasize, collect, centralize, and visually balance the facades. Not only does the result serve in understanding the contribution of colors to the quality of urban spaces, but also it helps analyze and design with a broad approach in most cases. Additionally, contemporary architects can make wiser decisions in case of color usage while designing in an Iranian context.

Keywords
Color, Architecture, Iran, Urban Space, Urban Square

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Part III
Evolving Architecture and Rethinking Cities

A Study on Public Acceptance of Carpooling to Mitigate Traffic Congestion in the City of Casablanca

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Abstract

Casablanca city is the largest city of Morocco and its main industrial labor center. Population growth of the city has put a considerable strain on the local transportation system. Between 2006 and 2014, private cars fleet in circulation has increased by 57%. In response, the supply of local public transportation systems was increased by implementing tramway since 2011. However, many residents still prefer private cars or other modes to commute to work or other purposes. Many researchers have recommended a shift towards Traffic Management Demand strategies such as carpooling, which can reduce private cars in circulation by increasing occupancy rate of the vehicles. Still, public acceptance of such a solution is required to carry out a modal shift. Although the existing literature contains many studies related to promoting carpooling acceptance, very few have been conducted in the Moroccan context, where carpooling is more informal and limited to inter-urban trips. This study investigates carpooling acceptance among a sample of Casablanca residents. An online questionnaire survey was carried out to determine the carpooling experience, along with socio-demographic and travel behavior attributes. Descriptive statistics and frequency distributions were used to analyze the collected data. For responders that never used carpooling before, COVID-19 pandemic, preference of long-distance carpooling, safety and privacy concerns were the main deterrents to participate in carpooling. In addition, verification of identity, encouraging carpooling market and parking incentives of drivers are the main strategies to promote carpooling in Casablanca city.

Keywords

Traffic congestion; Carpooling; Sustainability; Public transportation; Casablanca

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Identifying the Socio-Economic Requirements of Multi-Modal Hub Stations_ Literature Review

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Abstract

The importance of transportation networks and the system can be explained through the analogy of blood circulating in different parts of the body, henceforth, effective transportation networks and systems are necessary for the development of the entire nation. To improve or provide better living and working conditions for people, there are numerous infrastructure projects: residential, industrial, and commercial. These projects are in many locations, necessitating the need for an extremely effective transportation network and system. Transportation system inefficiency may result in increased resource consumption and prolonged project duration, both of which eventually increase costs. (Kumar, 2014)

transportation systems consist of a complex array of roads, bridges, ferries, ports, public stations, bike lanes, and walking paths that allow people and goods to get from one place to another, the transport stations are essential to promote sustainable development in society, which calls for connecting different modes of transportation in one location to foster interaction between users and the facilities. (L. Development, 2016) This paper offers a literature review of multi-modal hub stations requirements with the aim of defining Socio-economic requirements in multi-modal hub stations. After identifying the problem of the paper, the requirements of multi-modal hub stations focus on specific design aspects and the lack of previous knowledge of the social and economic requirements in multi-modal hub stations. This paper analyzes 60 peer-reviewed journal papers on multi-modal hub stations requirements and Socio-economic requirements in public buildings & public spaces from 2000 to 2021. The findings are formed from five main requirements that study multi-modal hub stations. These requirements include (functional requirements, circulation requirements, security and safety requirements, environmental design requirements, social and economic requirements), and defining the elements of the Socio-economic requirements in multi-modal hub stations. This paper recommends finding a framework for the design aspects of multi-modal hub stations.

Keywords

multi- Modal hub stations; social-economic requirements; requirements of multi- Modal hub stations.

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Depopulation as a Way to Saturate the Various Urban Structure's Inherent Deficits? Case of the Post-War Solitary Housing Estates.

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Abstract

As part of the research on the impact of urban depopulation on different types of urban structures, this paper focuses on one of the common types of urban development in Central Europe: post-war housing estates of solitary apartment buildings. The basic premise of the research is that the reduction of pressure on the territory caused by the population decline (the phenomenon of "shrinking cities") makes it possible to saturate some inherent deficits of these urban structures that are difficult to address in the situation of "normal" growing cities. Several reference neighborhoods of post-war settlements are selected, we collect their analytical data and monitor their change in relation to shrinkage. The variables monitored for the data analysis are a) spatial (public space and urban composition, hierarchy of privacy levels of public spaces), b) cultural (historical value, symbolic meaning), c) functional (diversity of functions, availability of amenities, capacity of technical and transport infrastructure), d) demographic (population density). The data obtained on the urban districts affected by shrinkage are confronted with the inherent deficits of each type of structure defined in the existing literature. On this basis, the possibilities of using shrinkage (a form of quantitative decline) to qualitatively grow post-war solitary urban structures are proposed. It seems possible to enrich the spectrum of public space types (reduced in this period of development compared to previous periods), to enrich the possibilities of housing types, to enrich the functional structure or to reflect the change in the need for transport infrastructure capacity due to lower population density.

Keywords

Shrinking cities; Urban structures; Historic urban spaces; Depopulation; Urban renewal;

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High-performance envelope: Energy performance analysis of exterior shell improvements to existing buildings

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Abstract

The building sector attracts decision makers' attention to limit its energy consumption and greenhouse gas emissions in various ways. As buildings and buildings construction sectors account for roughly one-third of the total energy demand globally, using innovative strategies to mitigate the impact of future uncertainties is highly critical. In response to this challenge, this study aims to develop a method to reduce energy consumption by optimizing the passive shell on buildings. As a case study, the impact of this passive system on electricity and gas consumption is investigated through a prototype building that is simulated in Design Building software. Using an exterior shell as a passive strategy was examined in terms of its material and its distance from existing facades in an administrative building in Iran. Results demonstrate an improvement in long-term energy consumption in summer and winter by adding an optimized shell on the southern façade of the building.

Keywords

Sustainable buildings; Passive shell; Energy analysis; Energy conservation; Electricity costs

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The Biophilic Healing Index (BHI) as a professional tool for indoors and outdoors active living design

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Abstract

The Biophilic Healing Index is a professional tool for architects, urban designers, and planners in process of validation and is advocated by Nikos A. Salingaros and the author of this paper. For several years, the author had several discussions with Salingaros about the applications of theories in design, architecture, urban design, and planning practices. She shared research with her undergraduate and postgraduate students through various modules' delivery. Recent scholarly activity included studies and ideas for transforming Derby into a livable city by connecting with local communities and supporting mediation between them and local policymakers.

Students enrolled in Urban Design Module exhibited their proposals for changes in the urban fabric on several occasions, and lately, the author and her students developed ideas of integration of the University campus within local communities' active living urban spaces. Facilitated by their tutor, the students carried out forums with local communities and applied research findings in their proposals by using specific sets of patterns of biophilia. They had selected patterns that could change human behaviours to secure the health and wellbeing of all citizens, always focusing on applications of the Biophilic Healing Index (Salingaros, 2019), which allows for measurements to establish percentages of existing or non-existing biophilia. As a result, new proposals of improvement are also measured for their efficiency and impact on citizens' health and wellbeing; proposed solutions and projects are also tagged with specific UN Sustainable Development Goals (SDGs) to allow for vital reviews of the city's masterplan.

Biophilia has the power to change human behaviours, when designers, architects, communities, and policymakers work together to transform cities into livable and resilient. "Livability relates to urban design and planning, elements which can influence a city's social mobility and financial prosperity. A livable neighbourhood can be compact, sustainable, diverse, green, healthy, accessible" (Tracada et al, 2020, p36), and above all active and resilient. Thus, it is important to get communities directly involved in active decisions and policy making. The author argues that policymakers should provide means and support for specific actions, not just promises. The latest events from Covid-19 taught us that the built environment and the urban spaces in which we live should guarantee all citizens' quality of life.

Keywords: Biophilic Healing Index (BHI); Masterplanning and Placemaking; Urban Design and Biourbanism; Sustainable Development Goals; Active Living in cities

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`Brownfield land redevelopment strategies in urban areas: Criteria contributing to the decision-making process

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Abstract

Urban intensification seems to be a growing trend, especially in the context of severe land scarcity. Brownfields offer great potential in meeting the increasing demand for housing in major cities worldwide. Redevelopment projects appear to provide immediate solutions to housing shortages that are being experienced due to population pressures in large metropolitan areas. The paper explores the range of factors that property developers need to consider in their decision-making process when assessing the viability of brownfield redevelopments. This research, which employed a comparative case study approach, and examined two brownfield redevelopments in Auckland, focused on the economic, social, and environmental criteria that were utilised in the decision-making process. Document analysis of the two case studies, site observations, and semi-structured interviews with the property developers were the main data collection methods. The results suggested that the economic aspects of a brownfield redevelopment are the most important criteria that developers consider during the feasibility assessment of proposed projects. Projects that offer the potential for quick investment returns for all stakeholders are the preferred choice for developers. Brownfield redevelopments offer significant potential for invigorating local areas through urban intensification which boosts local businesses and encourages community revitalisation. The environmental concerns appear to be the lowest priority and little consideration is given to reducing the environmental impacts or incorporating green building practices in the new developments. A major shift from a purely economic focus toward a comprehensive environmental approach to new developments is needed to ensure the sustainable development of cities.

Keywords

Brownfield redevelopment; High density housing; Property developers; Economic returns;Environmental impacts

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Culture-based Urban development in Nawalgarh, India

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Abstract

India's settlement patterns have remained reasonably consistent throughout history, and town planning reached a high degree of sophistication and adaptability in the pre-British era. The characteristic uses of public and private spaces and the emergence of clearly identifiable types of built forms suited to the climate, social and economic needs and the available material resources created a recognizable order and disorder.

Increasing heterogeneity of urban areas has led to the coexistence of diverse cultures, situating India's historic cores at the crossroads of cultural diversity. As per the Culture 21 Agenda, the responsibility to inculcate culture in new spatial and economic policies for development lies on the local government. The United Nations Educational, Scientific and Cultural Organisation (UNESCO) suggests that heritage is both tangible and intangible assets. Assets are the stock of resources that people use to build livelihoods, the acquisition of which is not a passive act and is therefore linked to the empowerment of individuals and communities, a belief amplified by the New Urban Agenda.

Extensive physical and household surveys in the class II town of Nawalgarh in Rajasthan, India have brought to the fore, pressing issues of assessment, management and valorisation of these assets within the present framework of urban planning prevalent in the country. In this paper, the authors attempt to move from mere discourse about heritage and bring to the fore specific contextual interventions that are suitable to address the complex intertwined issue of heritage-based development that ensures cultural continuity and identity, integrity, and sustainability. Such development strategies foster pride and the communal spirit of residents and positively impact property value.

Keywords

Planning for Historic Cores; Urban Conservation; Heritage-based development; Shekhawati

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Against the Wall: Reflections on Marginality & Precarity in South African Cities

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Abstract

South Africa's post-apartheid cities are defined by coloniality and precarity, particular for millions of the urban poor. Owing to the protracted history of colonialism and apartheid, these cities are simultaneously characterized by spaces of 'first-world' affluence, as well as spaces of abject poverty and alterity. This paper seeks to focus on the politics and practices of wandering in the post-apartheid urban spaces of alterity, i.e. the townships and the now debilitating central business districts where the majority of poor black people reside. It is argued here that the prevalence of rapid urbanization of poverty, coupled with high levels of unemployment, and the snail-paced delivery of affordable housing, has resulted in what might be called the everyday politics of wandering. In appreciating this politics of wandering I reflect on how the hitherto racially banished people still find it near-impossible to be firmly rooted in 'post-apartheid' cities due to the crushing weight of socio-spatial and economic marginalization.

Keywords

Walling; fortress; South Africa; Marginalization; Precarity

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Public Transportation Planning and Sustainable Networks Sustainable urban transport in Algerian peripheries cities - Case study of the city of Bab Ezzouar Algeria-

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Abstract

The development of transport infrastructure leads, at all scales, to an artificialization of the territory and the fragmentation of the urban environment. Landscape fragmentation is a spatial process, which is accompanied by a gradual reduction of connectivity between the different elements necessary to the success of the urban process. Thus, the proper integration of new ways of transport with the urban landscape has become a major issue for the success of transport projects and for the improvement of urban landscapes.

However, the increasingly complex phenomenon of urbanization poses many challenges today. Among the issues raised, sustainable development remains at the center of concerns. Indeed, with urban growth, urban sprawl and suburbanization, cities pose more and ecological difficulties and Algiers is no exception.

Starting from the unanimous observation of the strong existing relationships between urban planning and transport, taking the concern for sustainable development into account in urban management necessarily involves integrating transport management policies into this approach. Indeed, up to now, the development of urban planning and transport policies have remained separate, which has led to a flagrant lack of coherence between urbanization and the development of transport infrastructure. The articulation between transport networks and planning policy is therefore more than ever a necessity.

Among the Algerian cities is the city of Bâb Ezzouar, which we can notice the glaring lack of cohesion between urban planning and transportation management, especially after providing it with many sustainable means of transportation since 2011 until after the development of the transportation system in the city, now we notice that a city suffers from pressure in many neighborhoods at times and the absence of transportation in neighborhoods At other times, as well as the high rate of air pollution, due to the use of individual cars.

The study aims to test the extent of the impact of sustainable transportation in the city, Bab Ezzouar, on the areas they travel to. In addition, it carries a boost to sustainable development indicators. This step, based on the quantitative and hierarchical evaluation of these factors, made it possible to show the extent impact of these methods on the new and old urban tissues.

Keywords :

Transport, Urban, Public Transportation development, Sustainable, Planning urban, Bab Ezzouar, Algeria, peripheries, infrastructure.

Taking care of public spaces - Light and bottom-up regeneration in Tor Bella Monaca and San Basilio

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Abstract

Public housing districts, such as the Roman districts of Tor Bella Monaca and San Basilio, include large public spaces: a huge resource with great unexpressed potential. In such neighborhoods, certain circumstances develop - such as the single-purpose of some urban areas, the low density, the presence of physical degradation of the spaces related to poor maintenance - and cause the public space to malfunction, because it stops functioning as a social and experience condenser. Those places are characterized by social, economic and work insecurities where the public administration is not very much present and capable of developing urban regeneration projects associated with a sense of that specific place and capable of generating identity and care phenomena.

This work aims at discussing self-construction and bottom-up design practices, in the Roman public housing districts of Tor Bella Monaca and San Basilio, as a possible alternative to urban regeneration projects implemented by administrations and capable of achieving positive and long lasting results, by developing place identity.

The actions, even "moderate" they may be, carried out by these experiences levered to relocate the neighborhoods, bringing citizens closer to beauty and demonstrating that it is possible to reclaim public space possession and develop a sense of belonging and identity by triggering a process of permanent cure. Those activities had enormous consequences in giving meaning to places, transforming unused spaces, which appeared as urban voids and consequently neglected areas due to the lack of security in lived-in places, places of sociality, places that can be transformed. The institutional dimension, in turn, has the duty to support virtuous initiatives, which seize the concrete opportunity to design a new urban destiny of public spaces, affecting the social, cultural and generational aspects.

Keywords

Public space; Bottom-up actions; Place identity; Inclusiveness

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A study in optimization of FSI (Floor area ratio) in the state of Kerala

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Abstract

Kerala is well known for its unique settlement pattern; comprising the most part a continuous spread of habitation. The notable urbanization trend in Kerala is urban spread rather than concentration which points out the increasing urbanization of peripheral areas of existing urban centers. This has made it difficult for the government to meet the needs of the urban population, such as providing them with affordable housing and infrastructural services to support their livelihood; this is a matter that necessitates policy attention in order to determine the optimum FSI value. Based on recent reports (Post Disaster Need Analysis –PDNA) from the UN addressing the unsafe situation of the carpet FAR/FSI practice in the state showcasing the varying geological & climatic conditions, should also be a matter of concern.

The FSI (Floor space index- the ratio of the built-up space on a plot to the area of the plot) value is certainly one of the key regulatory factors in checking the land utilization for the varying occupancies desired for the overall development of a state with limitation in land availability when compared to its neighbors. The pattern of urbanization, physical conditions, topography, etc. varies within the state and can change remarkably over time which identifies, that practicing FSI norms in Kerala does not fulfill the intended function. Thus the FSI regulation is expected to change dynamically from location to location. So for determining the optimum value of FSI /FAR of a region in the state of Kerala, the government agencies should consider the optimum land utilization for the growing urbanization, on the other hand, shall keep in check the overutilization of the same in par with environmental and geographic nature.

Therefore the study identifies parameters that should be considered for assigning FSI within the Kerala context and through expert surveys; opinions arrive at a methodology for assigning an optimum FSI value to a region in the state of Kerala.

Keywords

Floor space index; urbanization; density; civic pressure; optimization

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Downscaling Regional Ecological Network and Landscape resources to develop Green Infrastructure at the city scale. Insights from an Italian case study

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Abstract

Since the first Rio Summit held in 1992, sustainable development has been one of the most important driving forces for the future cities.

To consolidate new sustainable growth models based on the management of natural resources, traditional spatial planning models are integrating with new 'performance based' approaches that consider the provision of ecosystem services (ES) through green infrastructure (GI) as a possible way to improve the environmental performance and quality of life for citizens. Despite this, in Italy the design and management of GI is still a part of the traditional land-use plan, where the development of urban green spaces at the city scale depends on the achievement of public green areas recognized by the Italian National Law.

The paper shows the results of an experience conducted in the central part of Italy, in which the downscaling of landscape and ecological elements of value deriving from regional and provincial planning instruments in local ecological network contributes to the integration of GI into land-use plan.

Adopting the ecological network on a local scale helps select and build new urban and peri-urban green spaces (Italian 'green standards') necessary for the continuity of natural resources, which helps to build the GI and the supply of ES.

It also represents the strategic framework for the development of the Green master plans at the city scale, a sectoral planning instrument to implement GI at the municipal scale, that will improve the quality of land-use plans.

Keywords

green infrastructure; ecosystem services; regional ecological network; land-use plan

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Urban Planning & Architectural Design for Sustainable Development 6th Edation
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