Proceeding Paper

Placemaking and Sustainable Urbanism: Strategies for Creating Liveable and Resilient Cities †

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Abstract: Sustainable urbanism has become a popular expression in the realm of planning and design. The concept of sustainable urbanism revolves around the idea of managing finite resources for the burgeoning population. The ultimate goal of sustainable urbanism is community well-being and inclusivity, which align with the objectives of placemaking. The paper aims to explore the prospects of placemaking in achieving sustainable urbanism. The case studies demonstrate that strategic investment in sustainable infrastructure and adaptive reuse practices yields long-term cost savings and environmental benefits. The conclusion reflects on the challenges related to citizen participation and governance, highlighting the necessity of collaboration and coordination among stakeholders.

Keywords: placemaking; urban design; urban revitalization; sustainable urbanism; local area planning; local self-governance; public participation; liveable cities; resilient cities; creative cities

1. Introduction

Globalization is universal in that its effects have not only pervaded agglomerations but also peri-urban areas [1]. It is estimated that 75 percent of the global population will live in cities by 2050 [2], and it is imperative to address the various challenges and issues. The pressing issue of population expansion amid rapid urbanization leads to increased migration to cities, placing substantial pressure on urban infrastructure. The scarcity of energy, water, and resources triggers overexploitation, placing immense pressure on the environment and causing subsequent pollution and degradation. Urban decay and neglected spaces brood social ills, such as crime and poverty [3], impacting a city's economic resilience and the well-being of its community and scarring biodiversity. The above instances are happening at various scales in our cities today and could result in a catastrophe. The development trajectory in the direction of sustainability can steer to better, more liveable, and more resilient cities if the issues are addressed and mended early in the process.

The concept of sustainable urbanism, grounded in principles of social inclusion, environmental consciousness, and economic viability, accords an integrated approach to urban development and effectively tackles these issues. The term sustainability is a cross-disciplinary concept that encircles various disciplines and fields, integrating diverse expertise to attend to socioeconomic and environmental issues. The discourse of placemaking incubates the very concept of sustainability in the realm of architecture, design, and planning, as urban design projects foster community betterment, environmental sensitivity, and economic improvement [2]. Placemaking incorporates sustainable principles in the design and development of places shared by communities that are functional, attractive, and meaningful. Through a qualitative literature study and case study analysis, this research aims to understand the role of placemaking in achieving sustainable urbanism.

The paper is organized into four distinct sections. Following this introduction, the second section, 'Sustainable urbanism', reviews the concepts of sustainability in the realm of urban planning and discusses various initiatives, shedding light on the dimensions and indicators of sustainability. The third section explores successful placemaking efforts to achieve sustainable urbanism and showcases best practices through successful case studies. The fourth section deliberates on the challenges related to participation and governance, underlining the necessity of collaboration and coordination among stakeholders.

2. Sustainable Urbanism

Sustainability, in simple terms, refers to the relationship between humans and their environment, ensuring long-term needs by acknowledging the needs of future generations [4]. Urban sustainability prioritizes equitable socioeconomic development [5] and environmental protection of urban areas [6] to improve the interdependency with urban systems. Urban sustainability is defined as an adaptive process of facilitating and maintaining a virtual cycle between the ecosystem and human well-being through concerted ecological, economic, and social actions in response to changes within and beyond the urban landscape [7]. The interdisciplinary practice coalesces components essential to planning and designing the built environment and optimizes the materials, energy, water, and associated pollutants [8]. To mitigate the negative impacts of pollution, sustainable urbanism employs smart green infrastructure with energy-efficient and eco-friendly practices. It also advocates the incorporation of recreational spaces with open green spaces within cities to augment the overall community well-being and ecological health of the urban environment. The rich diversity of communities is celebrated by safeguarding cultural assets, including heritage buildings and precincts, and expressing arts and culture with help from local expertise and creativity [8]. Sustainable technological innovations in industries ensure diversification and employment opportunities, promising long-term economic resilience and stability [9]. Sustainable urbanism upholds compact city development that revisits the culture of resource and energy consumption, intending to design sustainable units with accessible services within walking distance [10].

The Freiburg Charter for Sustainable Urbanism, drawn up in 2013 at the European Conference on Sustainable Urbanism in Germany, outlines 12 guiding principles [11]. These principles are grouped into spatial, content, and process categories focusing on the objectives that emphasize the need for cultural preservation, thereby strengthening neighbourhoods; establishing green nexus by safeguarding public areas; firming social inclusion by improving citizen participation; buttressing economic viability by securing jobs; and instituting adaptive and transitive cities. Following the Charter is the United Nations' Sustainable Development Goals (SDGs), which aim to promote sustainable urbanism by addressing social, environmental, and economic challenges related to urbanization and cities [12]. The 2030 agenda includes 17 goals: clean water, sanitation, and energy; responsible consumption and production; industry and economic escalation; reduced inequalities; good health and well-being; and sustainable cities and communities and life on land. These goals aim to create a healthy community with green spaces, walkable neighbourhoods, and well-planned compact cities. By aligning sustainable urban planning and design practices with these goals, cities can contribute to a more sustainable and equitable planet.

Initiatives, Dimensions, and Indicators for Sustainable Urbanism

In line with the global agenda to combat global warming, numerous cities have envisaged a range of initiatives to create an equitable and sustainable city [13]. The initiatives under the "One NYC" plan for New York City include policies to improve air quality, reduce greenhouse gas emissions, promote social integrity, and increase access to green spaces. A dedicated bike lane network, promotion of electric vehicles, and options for the expansion of public transportation networks are some of the initiatives by policy makers in Seattle, Washington. Brazil's extensive slum upgradation agendas by physical redevelopment and employment generation schemes have integrated slum neighbourhoods

into the city fabric [1]. The urban regeneration scheme of Barcelona has reinvented the city by choosing an alternative sector, such as creative and cultural tourism-based industries. The participatory budgeting framework of Porto Alegre, Brazil, in 1989 is a role model for more than 1200 municipalities worldwide, allowing citizens to allocate public funds for their contextual needs. This forestalls enforced elite governance practices and endorses local requirements. The various indicators combined by various agencies are listed in Table 1 below.

Table 1. Dimension and indicators of sustainability.

Dimension	Indicators
Demography [1,2,3,4,5]	Urbanization, population, migration, net population density, age pyramid, average household size, rate, minority, slums.
Social equity [1,2,5]	Income distribution, poverty, child labour, informal employment, unemployment, expenditure on poverty.
Health and education [1,2,5]	Persons per hospital bed, child mortality, life expectancy at birth, family planning, literacy rate, school enrolment rates.
Urban productivity [1]	City product per capita, household expenditure, investment by sector, employment by industry, tourism, major projects.
New technology [1]	R & D expenditure, internet hosts per thousand population.
Urban land [1,2,4]	Land developer multiplier, developer contributions, median time-planning, permission: open/vacant and commercial land
Housing [1,4]	Dwelling type, price, rent, tenure type, floor area per person, mortgage: credit, houses with mortgages, mortgage loans.
Municipal services [1,2,3,4,5]	Water, Electricity, Sewage/Wastewater, Telephone: Household connections, investment per capita, operations, maintenance, cost recovery, list of providers, interruptions.
Urban mobility [1,4]	Mode of travel, expenditure on road, infrastructure, congestion, median travel time, cost recovery from fares, fatalities.
Cultural [1]	Attendance at public events, galleries, museums, sports.
Local govt. finance [1,2]	Sources of revenue, capital and recurrent, expenditure per person, property taxes, expenditure ratio, debt service charge,
Urban governance [1,2]	Functions of local government, annual plan, local tax level, borrowing funds, choosing contractors and represeners.
Urban environment [1,2,3]	Solid waste generated, household sewage disposal, wastewater treated, air pollution concentrations, energy use.
Land and mountain [2,3,4]	Fragile ecosystem on land, agriculture, land use, arable land.
Ocean and coastal [2,3]	Population in coastal area, fisheries sustain yield, Algae index
Forest and atmosphere [2,3,4]	Forest area change, greenhouse gas emits, population welfare

[1] [14], [2] [15], [3] [16], [4] [17], [5] [18].

The sustainability principle-based interventions do not apply universally; rather, they vary with region and many other factors associated with place and people. The one-size-fits-all tactic does not apply due to the difference in the terrain, resources, cultural values, and socioeconomic dynamics. For example, an intervention required for a declined port city would prioritize its focus on an alternate economic engine like tourism to regenerate its potential waterfront. The same interventions are neither applicable nor relevant to peri-urban landlocked cities. It is at this point where the concepts of sustainability converge with placemaking ideas, as placemaking deals with nurturing spaces that reflect the essence of the place and the aspirations of the community. Such deep-rooted placemaking efforts that embrace the local context and engage the community foster a stronger sense of ownership among the people, making them responsible as well.

3. Placemaking Strategies within the Context of Sustainable Urbanism

The term 'placemaking' designates a multi-faceted approach to the planning, designing, and management of places for refining urban environments and residents' quality of life [19]. Placemaking utilizes the fundamental nature of humans to sustain the place they inhabit by defining, constructing, and hegemonizing place quality through actions,

reactions, and interactions [20]. This is evident in the origins of placemaking, which was based on the public's opposition to mega projects that sliced their spaces, interrupting social cohesions and displacing communities [21]. Initiatives spread across the world in response to the writings of Jane Jacobs and her contemporaries to reclaim their spaces and cities. The quintessence principle of placemaking, the importance of civic participation, was postulated in the seminal works of Henri Lefebvre [22]. David Harvey, in his book "Rebel Cities: From the Right to the City to the Urban Revolution", mentions the importance of identity in context and culture that makes a place exempt from the provision of duplicating or scaling up successful projects [23]. Placemaking, in the context of sustainable urbanism, is process-oriented and manifests the societal and ecological conditions of our time, also focusing on the sustainability of native values [24]. Transpiring collaborative, bottom-up, and community-led placemaking principles gradually imparted a more sustainable alternative to developer-driven speculative projects, which is top-down [21]. The Project for Public Spaces, founded on Jan Gehl's research on the quality of public life, has drafted methodologies and tools for placemakers crafting numerous projects around the world. The various placemaking strategies include adaptive reuse (repurposing of heritage structures), tactical urbanism (pop-up events, street furniture, coloured asphalt), street and market revitalization (pedestrian-friendly, safer junctions), waterbody restoration (ecological rehabilitation, disaster mitigation), urban green open space (urban parks, community guerrilla garden), walking and cycling facilities (sidewalks, bike lanes) and transit-oriented development (public transport, mixed-use, last mile connectivity).

Case Studies—Successful Placemaking Efforts

The transformative ability of placemaking has created people-centric, inclusive, sustainable urban spaces in various cities across the globe. The selection of case studies from governmental practitioners' guides and global best practices in placemaking is a valuable approach to informing and inspiring urban development projects. The transformation of congested, vehicle-laden streets in Times Square, New York, USA, into pedestrian-only public spaces with amenities like food, shopping, and theatre is a notable example. This was achieved through intensive workshops utilizing mobility analysis tools, stakeholder engagement, and pilot projects. These led to the renovation of historic public plazas, improved traffic management, attractive street furniture, and a platform for creative public art displays, benefitting both residents and visitors. In Seville, Spain, persistent public campaigns against congested roads resulted in the creation of an extensive 80-km network of fully segregated bicycle lanes. Rental services, climate-responsive infrastructure, and special bicycle lanes separated from vehicular traffic by raised curbs significantly improved usability and safety. Additionally, efforts to green narrow roads have contributed to a healthier, less polluted environment, making Seville a more liveable city.

In Delhi, India, Raahgiri Day emerged as a transformative initiative to reclaim the city streets for the community to walk, exercise, and recreate. This grassroots movement, conceived to address urban congestion and air pollution, has encouraged more residents to opt for eco-friendly modes of transportation, reducing air pollution and fostering healthier urban living. Thoroughfares are temporarily closed to vehicular traffic, creating a safe space for the public to participate in performances, cultural activities, and social interactions, thus becoming a symbol of active urban revitalization. The revitalization of eight historical lakes in Coimbatore, as part of the Smart City mission, is an excellent paragon for waterbody restoration, creating a 20-km-long Greenway connecting them. This community-driven project has transformed these areas into vibrant public spaces with amenities and also focuses on stormwater management and sustainable mobility. The amenities include seating, lighting, play areas, water recreation facilities, exercise zones, and even a food court. Multipurpose spaces for activities like skating, yoga, and co-working, along with restroom facilities, have also been incorporated.

While not low-cost upfront, these projects wisely allocate resources into more efficient and durable infrastructure, promoting sustainable mobility and significantly reducing

reliance on non-renewable fuels, and ultimately contributing to long-term cost savings and environmental benefits. The strong emphasis on adaptive reuse, involving repurposing existing structures and materials, minimizes resource consumption. Moreover, the promotion of green infrastructure, such as urban parks and open green spaces, contributes to both environmental well-being and cost-effective urban development.

4. Discussions and Conclusions

In spite of the fact that placemaking benefits sustainable urbanism, the concomitant challenges and limitations must also be considered. The existing opaque and unaccountable local urban governance that favours skewed and elite decision making dampens the provisions for stakeholder participation [1]. The success of placemaking lies in the group effort of multiple stakeholders, considered equal regardless of their background or status. This fair and inclusive nature of placemaking practices also makes it difficult to prioritize diverse opinions in case of conflicting agendas. One of the primary challenges thus lies in the mediation of stakeholders during the decision making. It is imperative to invest resources, time, and effort in the iteration process to understand the aspirations of the community, causing a substantial upfront cost. The difficulty in securing funds for critical endeavours can drastically impact the scope and scale of placemaking efforts. The nonexistence of appropriate operational governance mechanisms and an institutional framework in both policy making and implementation processes is a significant challenge of the placemaking framework [1]. The identification of potential barriers and opportunities for improving participation, governance, and funding mechanisms requires continued research and collaboration among diverse stakeholders to fully unlock the potential of comprehensive placemaking.

The demand for sustainable urbanism is driven by a multitude of urban issues and challenges that cities face worldwide. This research analyzes sustainable urbanism and placemaking strategies, revealing similarities and convergence. The concept of placemaking shares common objectives of sustainability concerning community well-being and inclusivity. While placemaking prioritizes the socioeconomic dimension, sustainable urbanism focuses on the dimension of the environment, and yet, both endeavour to improve the overall quality of life. Cities with sustainable practices attract investment, create innovative industries, and develop skilled workforces, driving economic growth and global market leadership. Prioritizing these concepts and continuously refining implementation can create liveable and resilient cities that meet the needs of the environment and the inhabitants, fostering a more sustainable and inclusive future for urban spaces worldwide.

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