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The Role of Participatory Planning and Design in Addressing the UN Sustainable Development Goals

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Abstract

This editorial explores the role of participatory planning and design in addressing the United Nations Sustainable Development Goals (UN SDGs) within urban, regional, and rural contexts, which is the focus of this thematic issue. Its contributions highlight how participatory approaches can foster inclusive, equitable, and sustainable urban development, moving beyond tokenistic engagement towards genuine community involvement. By examining a range of methods and case studies spanning 13 countries, the issue demonstrates the versatility of participatory planning in tackling key SDGs, particularly those related to sustainable cities (SDG 11), reduced inequalities (SDG 10), climate action (SDG 13), and partnerships for sustainability (SDG 17). We reflect on the successes and challenges of embedding participatory practices within governance structures, drawing on insights from prior academic fora and workshops we convened. Additionally, we acknowledge critiques of the SDGs for their limitations in addressing systemic economic and governance challenges, arguing for a more radical shift in urban planning paradigms. By situating participatory design within contemporary debates on sustainability, governance, and more-than-human approaches, this thematic issue advances the discourse on urban transformation and the future of SDG-driven planning practices.

Keywords

community engagement; participatory design; participatory planning; Sustainable Development Goals (SDGs); urban, regional, and rural resilience

1. Introduction

People and communities around the world are facing numerous global crises with intensifying severity, leading to increased expectations for urgent action from governments, industries, and civil society. In response, the United Nations Sustainable Development Goals (UN SDGs; https://sdgs.un.org) represent a universal global framework for addressing some of the world's most pressing challenges, ranging from poverty eradication, climate change, sustainable cities and communities, to peace and environmental sustainability (Figure 1). These 17 interconnected goals aim to create a more equitable, inclusive, and sustainable future by fostering collaboration across governments, industries, and civil society. Within this context, scholars and practitioners have identified urban planning as a critical discipline, uniquely positioned to address the complex interplay of social, economic, and environmental dynamics in the sustainability aspirations of the built environment.

Urban planning has long engaged with the aspirations of the SDGs, as seen in the literature on the built environment, housing, town planning, and smart cities. Visvizi and del Hoyo (2021) outlined the potential of technology-driven initiatives to advance sustainable urban development while simultaneously cautioning against their limitations when implemented through a techno-centric lens. This tension is illustrated by the adoption of smart city technologies by businesses and city administrations. While such infrastructure investments and deployments aim to optimise resource use, efficiencies, and enhance public governance, predominantly techno-centric and top-down approaches often overlook crucial social, civic, and environmental factors (Loh et al., 2020). To achieve the SDGs, it is crucial to shift the focus from solely "smart" technologies to participatory planning involving meaningful community engagement and collaboration with stakeholders from early design stages to project completion (Caldwell et al., 2021; Fredericks, Caldwell, et al., 2019; Kamols et al., 2021). By leveraging information and communication technology, participatory planning and design can foster a sense of shared ownership, social responsibility,

Figure 1. UN SDGs. Source: UN (n.d.).

and investment in sustainable development for cities, regions, and rural communities. Similarly, Blasi et al. (2022) have strengthened the theoretical linkage between smart cities and the SDGs, arguing for integrating sustainability principles into urban governance. However, as Schraven et al. (2021) and Yigitcanlar et al. (2019) note, meaningful realisation of the SDGs requires more than technological solutions—it necessitates a fundamental shift towards participatory, inclusive, and equitable urban planning practices.

2. Participatory Planning and the UN SDGs

By embracing participatory planning and design, we can collectively strive for inclusive and sustainable urban development, promoting social equity, economic prosperity, and environmental stewardship. However, participatory planning practice comes with challenges. This thematic issue of the *Urban Planning* journal set out to curate a diverse collection of articles that report on challenges and opportunities as well as methods and case studies. It examines how participatory planning and design approaches can further the SDGs in urban, rural, and regional contexts. It aims to foster inclusiveness and sustainability within and beyond urban environments by prioritising the voices and needs of all stakeholders, including diverse communities and non-human living beings (Dolejšová et al., 2021; Heitlinger et al., 2024; Sheikh et al., 2023). To meet the expectations of the SDGs in our built environments, it is essential to transition from tokenistic approaches to community engagement to authentic forms of participation (Kamols et al., 2021; Monno & Khakee, 2012). Participatory planning and design hold the potential to empower communities, fostering a sense of agency and ownership that is critical for realising the SDGs. Yet, this process is not without its challenges. Too often, participatory methods are co-opted by vested interests, diluting their transformative potential (Dobson & Parker, 2023; Mattern, 2020; Teli et al., 2020).

We have sought to address these challenges through a series of academic/practitioner workshops that we convened, beginning with *Designing Smart for Sustainable Communities* at OZCHI 2019 in Perth, Western Australia (Fredericks, Parker, et al., 2019). This workshop highlighted the role of Human-Computer Interaction (HCI) in addressing the SDGs by engaging communities in co-design processes that counteract techno-centric, top-down approaches. At the Participatory Design Conference (PDC) in 2022 in Newcastle upon Tyne, UK, our focus shifted to exploring participatory design as a means of fostering sustainable and resilient communities through deeper collaboration between communities and institutions (Fredericks et al., 2022). Our OZCHI 2023 workshop expanded this discussion to consider the implications of AI, the metaverse, and "designing over a distance" for achieving the SDGs (Fredericks et al., 2023). Together, these workshops have laid the groundwork for this thematic issue, offering critical insights into the role of participatory design and planning in addressing the SDGs.

3. Scope and Coverage

This thematic issue advances participatory planning approaches and methods to explore connections between planning and the advancement of the SDGs in situ. Our key goals were to (i) demonstrate the diversity of responses and contributions from participatory planning and design in addressing the UN SDGs and (ii) highlight how these approaches vary across geographic, socio-cultural, and disciplinary contexts. We are pleased to have been able to bring together contributions from author teams and case studies spanning 13 countries: Australia, Belgium, Bosnia and Herzegovina, China, Estonia, Finland, Germany, Ireland, New Zealand, Poland, Slovakia, Tanzania, and the UK. These articles reflect a rich tapestry of

socio-political, cultural, and environmental conditions, illustrating how participatory planning and design can address the unique challenges and opportunities presented by different regional contexts.

The articles collectively explore a broad spectrum of SDGs, showcasing the versatility of participatory methods in addressing critical global issues. Many of our contributions focus on *SDG 11: Sustainable Cities and Communities*, examining urban (and rural) resilience, inclusivity, and environmental sustainability. Others align with *SDG 10: Reduced Inequalities*, exploring how participatory design can empower marginalised communities and foster equitable development. Additional goals, amongst others, include *SDG 17: Partnerships for the Goals*, emphasising collaboration across sectors and disciplines; *SDG 13: Climate Action*, addressing the urgent need for sustainable responses to climate change; *SDG 5: Gender Equality*, approaches to increase inclusivity and participation from all people; and *SDG 16: Peace, Justice and Strong Institutions*, highlighting governance frameworks that prioritise fairness and transparency. Thus, this diverse collection of articles highlights the global applicability of participatory planning and design and provides critical insights into how these methods can be tailored to meet the specific needs of different communities. By doing so, it shows the potential of participatory approaches to contribute meaningfully to the SDGs, fostering equitable, sustainable, and resilient futures across a wide variety of contexts.

This thematic issue reflects a deliberate effort to balance theoretical and practical insights, offering readers both methodological innovations and empirical case studies. While the boundaries between these categories are often blurred—many contributions seamlessly integrate methodological approaches with practical applications—we have broadly organised the articles into two groups. Five primarily focus on *methods* and seven present in-depth *case studies*. This division highlights the dual emphasis of this thematic issue: advancing the theoretical and procedural frameworks of participatory planning and design while showcasing real-world applications that bring these frameworks to life. In the following section, we briefly summarise each article, organised by these categories.

3.1. Methods

Leading our methods section is the article "Participatory Interventions: Digital Crowd Mapping Perceptions of Safety in Public Space" by Matthewson, Kalms, and Berry. Aligning with *SDG 5: Gender Equality*, and *SDG 11: Sustainable Cities and Communities*, it presents a case study of perceptions of safety amongst women and gender-diverse people in public spaces in Victoria and New South Wales, Australia. The case study utilises a participatory, interactive, geolocative digital crowd-mapping platform. The data and insights provide city planners, urban designers, and community members, with a gender-sensitive lens developed with the expertise of people from the community. This method of data collection and feminist co-design democratises the research process, amplifies marginalised voices, and avoids the hazards of technocentrism and top-down approaches. The authors argue the findings underscore the nuanced, context-specific nature of gender inequality in public spaces, highlighting the pervasive impact of social and environmental factors on safety perceptions and access in both urban contexts and rural areas.

This article, "Informing Heritage Conservation Through Diverse Experiences: The Case of the Leuven Town Hall," by Eisazadeh, Vermeersch, and Heylighen, investigates how participatory approaches can enhance built heritage conservation by integrating diverse perspectives. With Leuven Town Hall in Belgium as a case study, the article examines how engaging individuals with disability experience as experts contributes to

more inclusive conservation practices. The study highlights the role of embodied knowledge in identifying affordances and obstacles within historic sites, linking this approach to *SDG 11: Sustainable Cities and Communities*, and *SDG 10: Reduced Inequalities*. The findings demonstrate the value of participatory design in making heritage sites more accessible and socially sustainable.

The article "Participatory Retrofitting Through Extended Planners in Tanzanian Urban Areas" by Majogoro, Devisch, and Magina examines the role of extended planners, including local communities, informal networks, and grassroots organisations, in participatory urban retrofitting. This case study from Tanzania investigates how bottom-up engagement contributes to sustainable urban transformation. The article discusses the challenges of institutional recognition and scalability, highlighting the need for governance structures that integrate participatory initiatives into formal planning. It aligns with *SDG 11: Sustainable Cities and Communities*, and *SDG 17: Partnerships for the Goals*, advocating for approaches that embed local knowledge in urban decision-making.

This article, "Community Mobilisation Through Translation: A Sustainable Framework for Participatory Planning," by Tan, Rui, and Xu, examines the application of translation theory to a participatory planning framework for engaging the community of Bijiang Village, China. Workshops and public exhibitions were hosted by the community planners to share memories and histories as participatory planning methods to engage village people with the rural urbanisation process. Aligned with *SDG 11: Sustainable Cities and Communities*, it reveals how the participatory framework is applied in a continuous cycle of negotiation and realignment of citizens' interests, facilitating long-term and sustainable development for urban regeneration projects.

The article "AI-Supported Participatory Workshops: Middle-Out Engagement for Crisis Event" by Tomitsch et al. explores how artificial intelligence (AI) can enhance participatory workshops for community decision-making in response to environmental crises. It introduces the "middle-out" engagement approach, bridging top-down institutional and bottom-up community perspectives, which supports *SDG 11: Sustainable Cities and Communities*, and *SDG 17: Partnerships for the Goals*. The study highlights the potential of AI to mediate conflicts, integrate non-human perspectives, and foster inclusive dialogue, offering innovative methodologies for participatory planning.

3.2. Case Studies

This article, "Connecting to the Sea: A Place-Based Study of the Potential of Digital Engagement to Foster Marine Citizenship," authored by Willis and Gupta, used a participatory co-design approach in Plymouth, England to explore the potential for place-based digital engagement to connect people with the sea. This article addresses *SDG 11: Sustainable Cities and Communities*, and *SDG 14: Life Below Water*. The authors explored whether place-based digital technologies can engage communities with marine spaces and make coastal areas more accessible. Using the collaborative community-led concept of a city marine park, they explored the requirements for digital technologies for creating marine citizenship against the challenge of building coastal resilience. This participatory action research study took place in an urban coastal community, in collaboration with a local organisation, over a period of six months. Barriers for accessing the sea and ways in which the sea was perceived as a space in the city are identified. Co-design workshops used creative prototyping with local families to design a digital toolkit for accessing the sea. By enabling access to

temporal and biodiverse marine spaces such as rocky shores, place-based digital technologies can create new ways for communities to access and engage with the sea.

The article "The People and the Fire Tree: Co-Designing a Bushfire Early Warning System to Meet the Sustainable Development Goals" by Munoz-Rivas, Davis, and Pedell examines the integration of participatory design and citizen science to enhance community resilience in rural areas. In an Australian-based bushfire-prone community, participants co-designed "Bushwire," a socio-technical platform that facilitates knowledge sharing, environmental monitoring, and collaborative preparation for natural disasters. The article directly addresses *SDG 11: Sustainable Cities and Communities*, *SDG 13: Climate Action*, *SDG 15: Life on Land*, and *SDG 17: Partnerships for the Goals*. It highlights how digital tools can empower communities to leverage local knowledge, foster trust, and build stronger connections with their environment and among stakeholders. The more-than-human perspective aligns with the thematic issue's emphasis on innovative approaches to achieve the SDGs through collaborative planning and design.

The article "Urban Beekeepers and Local Councils in Aotearoa, New Zealand: Honeybees Are Valuable Allies in Achieving the Sustainable Development Goals" by Dimitrov highlights the significant role urban beekeeping plays in advancing sustainability goals within urban planning and governance frameworks. Examining urban beekeeping in NZ, the article sheds light on how hobbyist beekeepers contribute to sustainable food systems, biodiversity, and community wellbeing. It advocates for better integration of beekeeping practices into urban policies and calls for collaboration between local councils and beekeepers to address challenges such as restrictive bylaws and public misconceptions. This article aligns with *SDG 1: No Poverty*, *SDG 2: Zero Hunger*, *SDG 3: Good Health and Well-being*, *SDG 4: Quality Education*, *SDG 8: Decent Work and Economic Growth*, *SDG 11: Sustainable Cities and Communities*, and *SDG 12: Responsible Consumption and Production*. The study further corroborates the importance of integrating Indigenous Māori perspectives, further enriching the discourse on cultural and ecological sustainability.

This article, "Co-Designing Urban Interventions Through the Lens of SDGs: Insights From the IN-HABIT Project in Nitra, Slovakia," by Melichová and Hrivnák, examines co-design methodologies within the Horizon 2020 IN-HABIT project in Nitra, Slovakia. It analyses stakeholder engagement in urban interventions, focusing on *SDG 11: Sustainable Cities and Communities, SDG 10: Reduced Inequalities*, and *SDG 17: Partnerships for the Goals*. The study highlights how co-design strengthens community participation and fosters public-private-people partnerships while identifying institutional barriers. The article concludes with recommendations for enhancing co-design methodologies, including capacity-building and participatory site-specific interventions to support sustainable urban development.

The article "Reshaping Social Spaces After Socialism Through Citizen Participation: The Case of Novo Sarajevo's Post-Conflict Neighborhoods" by Tatlić and Zagora investigates participatory urban interventions in post-socialist and post-conflict Sarajevo. It examines how citizen engagement has influenced the transformation of residential neighbourhoods, addressing socio-spatial inequalities and historical legacies. The study highlights tensions between top-down planning and grassroots initiatives, demonstrating how participatory approaches can reclaim public spaces and foster social cohesion. Aligning with *SDG 11: Sustainable Cities and Communities* and *SDG 16: Peace, Justice, and Strong Institutions*, the article advocates for inclusive planning that integrates community-led initiatives into urban governance frameworks.

This article, "Local Voices, Global Goals: Participatory Planning for Localizing the UN SDGs in UNESCO Heritage Site Management," by Eremenko and Kraski, explores the role of local actors in integrating SDGs into World Heritage Site Management Plans, within a polycentric governance framework. This case study is situated in the medieval town of Toruń, Poland. The authors employ a triangulation of qualitative approaches, including in-depth interviews with diverse groups including citizens and experts, participant observation, and analysis of key documents facilitating the pursuit of the SDGs in urban planning. A key actor, the local Revitalisation Committee contributed to the formulation of the World Heritage Site Management Plan and integration of *SDG 11: Sustainable Cities and Communities*, and *SDG 15: Life on Land* locally.

Finally, the article "Co-Creating Change: Seedbed Interventions as Catalysts for Equitable Urban Planning— The Case of Umeå" by Gäckle et al. presents a comprehensive analysis of seedbed interventions in Umeå, Sweden. The seedbed intervention approach was used to facilitate community engagement amongst diverse groups of citizens to achieve more inclusive urban planning outcomes. Their research aligns with *SDG 5: Gender Equality*, *SDG 10: Reduced Inequalities*, and *SDG 11: Sustainable Cities and Communities* by focusing on the "leave no one behind" principle, central to the 2030 Agenda for Sustainable Development. Seedbed intervention promotes inclusive and safe spaces based on individual participation and co-creative planning necessary for connecting top-down interests with bottom-up planning.

4. Future Outlook

This thematic issue highlights the significant relationship between urban planning and the UN SDGs, demonstrating the merits of genuinely employing participatory planning and design to address critical global challenges. The contributions illustrate the potential of the SDGs as a framework for promoting sustainable, equitable, and inclusive urban development while fostering ecological resilience and social justice. However, the SDGs have been criticised for lacking the radical vision needed to address the deeply entrenched systemic issues underlying contemporary crises (Engebretsen & Greenhalgh, 2025; Foth et al., 2021; Gabay & Ilcan, 2017).

These critiques centre on the SDGs' inability to transform the outdated neoliberal economic paradigms of the 1980s, which prioritise infinite growth and market-driven solutions led by corporations. These aspirations conflict with the Club of Rome's seminal 1972 finding that infinite growth is unsustainable on a finite planet (Meadows et al., 1972). Scholars such as Steele (2019) argue for a shift towards rewilding urban environments, recognising the need to repair human-nature relationships in the face of ecological degradation. Birkeland (2022) critiques current sustainable design frameworks for their limited capacity to deliver truly eco-positive outcomes, advocating instead for transformative approaches that regenerate natural systems.

A more-than-human perspective, as explored by Fieuw et al. (2022), emphasises the importance of planning and designing the built environment for multispecies justice, challenging anthropocentric urban development models. Similarly, Sheikh et al. (2023) propose integrating multispecies entanglements into regional planning to create city-regions that prioritise relational and ecological wellbeing over economic growth. These approaches call for a paradigm shift in urban planning and design, moving beyond the SDGs' limitations and arguing for embracing bold, transformative, regenerative, and inclusive strategies and approaches to achieve genuine sustainability that must not be human-centred but life-centred (Borthwick et al., 2022; Tomitsch et al., 2021). These thematic issue contributions align with these calls for change,

offering valuable insights into how urban planning and design can evolve to address the intertwined challenges of environmental, social, and economic justice in an increasingly uncertain future. Through the integration of participatory methods, ecological awareness, and community agency, these approaches provide pathways for rethinking sustainability to genuinely transform urban and regional systems, fostering a more resilient and equitable future for all.

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Conflict of Interests

The authors declare no conflict of interests.

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