Eco-friendly urban design: An analysis of sustainable building practices and their community impact

Prepared by: Chenar Tahir Hama Ameen

{2024}

Contents

Abstract

Eco-friendly urban design is essential in tackling the challenges arising from rapid urban growth and the increasing pressure on natural resources. This paper offers a thorough examination of sustainable building practices and their effects on communities within the framework of urban design. The initial section discusses various sustainable building methods that contribute to eco-friendly urban design, including renewable energy utilization, green materials, and energy-efficient technologies. Implementing these practices not only minimizes the environmental impact of urban developments but also strengthens the resilience of the constructed environment. The second part of the paper investigates the impact of sustainable urban design on communities. It highlights how these practices can enhance community spirit, elevate residents' quality of life, and support social equity. Sustainable urban design extends beyond environmental concerns to adopt a comprehensive approach that prioritizes inhabitants' well-being. The paper also includes case studies and examples of effective sustainable urban design projects worldwide, demonstrating the benefits of eco-friendly practices such as improved air and water quality, reduced energy use, and the development of vibrant, walkable neighborhoods. In summary, this paper underscores the significance of sustainable urban design in addressing the environmental and social issues linked to urbanization. By embracing eco-friendly building practices, communities can lessen their environmental footprint and foster healthier, more resilient, and inclusive urban spaces. This review is a valuable resource for urban planners, architects, and policymakers dedicated to advancing sustainable development and improving urban community well-being.

Keywords:

Urban Design; Eco-Friendly; Building Practices; Sustainable Design; Review

Introduction

In response to the challenges presented by rapid urbanization and growing environmental concerns, sustainable urban design has become a crucial approach to aligning urban development with ecological sustainability. Central to this shift is a detailed investigation of eco-friendly building practices and their significant effects on local communities. This review provides an in-depth analysis of the complex relationship between sustainable urban design, eco-friendly construction methods, and their real-world impacts on community welfare (Zhang & Kim, 2023). The pressures of urbanization, driven by population growth and migration, have led to a heightened need for infrastructure and housing, straining natural resources and intensifying environmental harm. To address these issues, sustainable urban design aims to transform traditional city planning by integrating environmentally friendly building practices as a core principle. The objective extends beyond mere construction to developing resilient, ecologically responsible urban environments that exemplify mindful growth. This exploration of eco-friendly building practices goes beyond incorporating renewable energy sources, sustainable materials, and energy-efficient technologies (Kumar et al., 2023). It includes a comprehensive vision that acknowledges the significant impact these practices have on urban communities. The interconnection between environmental sustainability and community well-being becomes evident as we examine how green building practices can foster community spirit, improve life quality, and enhance social equity in diverse urban settings. The review will include case studies and examples from successful sustainable urban design projects around the globe (Puskás et al., 2021). These real-life cases will highlight the transformative benefits of eco-friendly construction practices, such as enhanced air and water quality, reduced energy use, and the development of inclusive, walkable neighborhoods. By integrating these findings, this review aims to guide urban planners, architects, and policymakers, providing valuable insights into the complex interplay between sustainable urban design, eco-friendly practices, and the overall well-being of urban communities.

Sustainable Urban Design Urbanization

an ever-expanding global trend, has reshaped our landscapes and societies presenting both opportunities and challenges (Heifetz & Jaffe, 2023). At the core of this transformative shift is the concept of Sustainable Urban Design, which seeks to develop cities that are economically viable, environmentally responsible, and socially inclusive. Sustainable Urban Design involves the strategic integration of environmental, social, and economic factors in urban planning and development (Lak et al., 2020). It represents a comprehensive approach that aims to balance the needs of urban living with the conservation of natural resources and the welfare of communities. This approach transcends traditional focuses on mere construction, aiming to build resilient and thriving cities that harmoniously coexist with their environment. As urban populations grow at an unprecedented pace, the importance of Sustainable Urban Design becomes more critical (Wei et al., 2023). Conventional urban development models, often marked by sprawling infrastructure, resource intensive practices, and uncoordinated planning, pose significant threats to the environment and exacerbate social inequalities. Sustainable Urban Design offers a remedy by reimagining how we plan and construct our cities. A major challenge of rapid urbanization is the excessive strain on natural resources.

Traditional urban development practices

from high energy consumption to significant water usage, place substantial pressure on ecosystems (Mondal & Palit, 2022). Sustainable Urban Design addresses these issues by incorporating eco-friendly building practices that focus on resource efficiency and environmental care. By utilizing renewable energy sources, adopting green building materials, and deploying energy-efficient technologies, cities can lessen their ecological impact and support global climate change mitigation efforts. Moreover, Sustainable Urban Design acknowledges the connection between the built environment and the well-being of urban residents (Pineo, 2022). Rapid development often negatively affects the social fabric of cities, leading to problems such as social isolation, inequality, and declining quality of life. By emphasizing community involvement, inclusivity, and accessible design, Sustainable Urban Design aims to foster environments where residents can thrive socially and economically. The aim of this review is to explore the essence of Sustainable Urban Design by focusing on a key element—eco-friendly building practices—and their significant effects on communities (Khan & Ali, 2023).

This review goes beyond merely examining green technologies; it investigates how these practices can transform urban environments to be environmentally responsible, socially equitable, and economically sustainable. By analyzing eco-friendly building practices such as renewable energy use, sustainable materials, and energy-efficient technologies, this review seeks to uncover how these strategies align with the broader objectives of Sustainable Urban Design. It aims to highlight how these practices can alleviate environmental damage, lower carbon emissions, and enhance resilience in the face of climate change. In addition, the review emphasizes the social implications of eco-friendly building practices.

It recognizes that Sustainable Urban Design is not just about constructing buildings but also about creating spaces that foster community engagement, enhance residents' quality of life, and promote social equity. By reviewing case studies and examples from successful sustainable urban design projects worldwide, this review intends to demonstrate how these practices result in tangible benefits for urban residents.

Eco-Friendly Building Practices

As the world confronts the growing issues of climate change and environmental degradation, the construction industry

has become a key player in advancing sustainability. Eco-friendly building practices are central to this effort, offering

innovative approaches that meet the demands of urbanization while preserving the planet's long-term health.

A core principle of eco-friendly building practices is the utilization of renewable energy sources (Ndukwu et al., 2021).

Buildings are significant energy consumers, and their reliance on fossil fuels greatly contributes to carbon emissions.

Incorporating renewable energy technologies such as solar panels, wind turbines, and other clean energy systems

enables buildings to produce their own energy, reducing dependence on finite resources and lessening their

environmental impact.

The selection of construction materials is crucial to a building's environmental sustainability (Omer & Noguchi, 2020).

Eco-friendly practices prioritize the use of green building materials, which are designed to have minimal environmental

impact throughout their lifecycle. These include materials with recycled content, those sourced from sustainably

managed forests, and products with a low carbon footprint (Korbelyiova et al., 2021). Using such materials helps reduce

resource depletion and lowers emissions compared to traditional building materials.

Energy efficiency is a fundamental aspect of eco-friendly building practices. Advanced technologies like smart building

systems, energy-efficient HVAC (heating, ventilation, and air conditioning) systems, and enhanced insulation techniques

play a crucial role in optimizing energy use within buildings. These technologies enable significant reductions in energy

consumption, leading to lower greenhouse gas emissions and decreased reliance on non-renewable energy sources.

Eco-friendly building practices are essential for reducing the carbon footprint associated with construction and building

operations. By adopting renewable energy sources and energy-efficient technologies, buildings can substantially cut

greenhouse gas emissions. Furthermore, integrating carbon sequestration methods, such as green roofs and materials

that absorb carbon, helps offset the carbon impact of construction activities.

Traditional construction methods often involve the extensive extraction and use of natural resources (Zhang et al.,

2021). In contrast, eco-friendly building practices emphasize the conservation of resources. By incorporating recycled

or reclaimed materials, reducing waste through efficient construction techniques, and selecting materials with minimal

environmental impact, these practices help preserve ecosystems and biodiversity (Wang et al., 2020).

The resilience of built environments against climate change is a crucial aspect of modern construction (Murtagh et al.,

2020). Eco-friendly building practices improve the resilience of structures by integrating features such as climate-

responsive designs, resistance to natural disasters, and the adaptive reuse of existing buildings. This approach ensures

that buildings are better equipped to handle the challenges posed by a changing climate, thereby enhancing their

durability and sustainability.

In summary, eco-friendly building practices mark a significant shift in the construction industry, moving beyond

traditional methods to embrace a sustainable and environmentally mindful approach. The use of renewable energy

sources, green building materials, and energy-efficient technologies collectively transforms how buildings are designed,

constructed, and operated (Salvalai et al., 2023). By reducing carbon footprints, conserving natural resources, and

improving the resilience of the built environment, these practices offer a hopeful path towards a more sustainable and

ecologically responsible future (Taneja et al., 2023).

The transformative impact of Sustainable Urban Design extends well beyond environmental concerns, deeply affecting

community dynamics and significantly enhancing the quality of life for urban residents. This exploration delves into the

broad community benefits of Sustainable Urban Design, focusing on its comprehensive approach to fostering

community well-being, enhancing residents' quality of life, and advancing social equity (Yu et al., 2020)

summery

in conclusion Sustainable Urban Design offers a hopeful perspective in the context of accelerating urbanization (Zahid, 2023). By envisioning cities as interconnected ecosystems that balance environmental sustainability with social well being, this approach paves the way for resilient and inclusive urban environments. This review of eco-friendly building practices within Sustainable Urban Design aims to not only understand their technical aspects but also to inspire a shift in how we design and build our cities—one that prioritizes the harmony between urban growth and environmental stewardship for the benefit of present and future generations. 2.1. Eco-Friendly Building Practices As the world confronts the growing issues of climate change and environmental degradation, the construction industry has become a key player in advancing sustainability. Eco-friendly building practices are central to this effort, offering innovative approaches that meet the demands of urbanization while preserving the planet's long-term health. A core principle of eco-friendly building practices is the utilization of renewable energy sources (Ndukwu et al., 2021). Buildings are significant energy consumers, and their reliance on fossil fuels greatly contributes to carbon emissions. Incorporating renewable energy technologies such as solar panels, wind turbines, and other clean energy systems enables buildings to produce their own energy, reducing dependence on finite resources and lessening their environmental impact. The selection of construction materials is crucial to a building's environmental sustainability (Omer & Noguchi, 2020). Eco-friendly practices prioritize the use of green building materials, which are designed to have minimal environmental impact throughout their lifecycle. These include materials with recycled content, those sourced from sustainably managed forests, and products with a low carbon footprint (Korbelyiova et al., 2021). Using such materials helps reduce resource depletion and lowers emissions compared to traditional building materials. Energy efficiency is a fundamental aspect of eco-friendly building practices. Advanced technologies like smart building systems, energy-efficient HVAC (heating, ventilation, and air conditioning) systems, and enhanced insulation techniques play a crucial role in optimizing energy use within buildings. These technologies enable significant reductions in energy consumption, leading to lower greenhouse gas emissions and decreased reliance on non-renewable energy sources. Eco-friendly building practices are essential for reducing the carbon footprint associated with construction and building operations. By adopting renewable energy sources and energy-efficient technologies, buildings can substantially cut greenhouse gas emissions. Furthermore, integrating carbon sequestration methods, such as green roofs and materials that absorb carbon, helps offset the carbon impact of construction activities. Traditional construction methods often involve the extensive extraction and use of natural resources (Zhang et al., 2021). In contrast, eco-friendly building practices emphasize the conservation of resources. By incorporating recycled or reclaimed materials, reducing waste through efficient construction techniques, and selecting materials with minimal environmental impact, these practices help preserve ecosystems and biodiversity (Wang et al., 2020). The resilience of built environments against climate change is a crucial aspect of modern construction (Murtagh et al., 2020). Eco-friendly building practices improve the resilience of structures by integrating features such as climate responsive designs, resistance to natural disasters, and the adaptive reuse of existing

buildings. This approach ensures that buildings are better equipped to handle the challenges posed by a changing climate, thereby enhancing their durability and sustainability. In summary, eco-friendly building practices mark a significant shift in the construction industry, moving beyond traditional methods to embrace a sustainable and environmentally mindful approach. The use of renewable energy sources, green building materials, and energy-efficient technologies collectively transforms how buildings are designed, constructed, and operated (Salvalai et al., 2023). By reducing carbon footprints, conserving natural resources, and improving the resilience of the built environment, these practices offer a hopeful path towards a more sustainable and ecologically responsible future (Taneja et al., 2023). The transformative impact of Sustainable Urban Design extends well beyond environmental concerns, deeply affecting community dynamics and significantly enhancing the quality of life for urban residents. This exploration delves into the broad community benefits of Sustainable Urban Design, focusing on its comprehensive approach to fostering community well-being, enhancing residents' quality of life, and advancing social equity (Yu et al., 2020).

Case Studies and Examples

Case study A

notable instance of sustainable urban design is the Vauban district in Freiburg, Germany (Bardhyl, 2023). This pioneering neighborhood is characterized by its car-free layout and emphasis on ecological building practices, energy efficiency, and active community involvement. The area features green roofs, solar panels, and energy-efficient buildings, creating a landscape that supports both environmental sustainability and a high quality of life. Vauban's focus on pedestrian and cyclist-friendly spaces, along with effective public transportation, has reduced dependence on private

Masdar City in Abu Dhabi represents another ambitious example of sustainable urban development. With a goal of achieving carbon neutrality, Masdar City integrates advanced technologies, renewable energy sources, and innovative urban planning strategies. The city uses sustainable construction materials, harnesses energy from photovoltaic panels, and emphasizes energy efficiency throughout its design. Its planning includes shaded walkways, green spaces, and efficient public transportation, all contributing to a sustainable and technologically progressive urban environment (Friedman, 2020). Vancouver is recognized for its dedication to sustainable urban design and green building practices (Dou, 2021). The city has enacted policies that encourage high-density, mixed-use developments, which help to curb urban sprawl and protect natural landscapes. Vancouver emphasizes green building standards and integrates eco-friendly features into construction projects. The city also promotes sustainable transportation options, including extensive bike lanes and an efficient public transit system, which contribute to lower emissions and improved air quality. BedZED, situated in London, serves as a model for carbon-neutral eco-communities, demonstrating the benefits of sustainable building practices on air and water quality. The development includes energy-efficient designs, renewable energy sources, and water recycling systems. Its green roofs and communal gardens not only enhance visual appeal but also function as natural air purifiers. BedZED's comprehensive approach to sustainable construction has led to better air quality and less strain on water resources. The Edge in Amsterdam is acclaimed as one of the world's greenest office buildings, utilizing cutting-edge eco-friendly building practices to drastically cut energy consumption. The building features smart lighting systems, energy-efficient heating and cooling, and a large rooftop solar array. The integration of intelligent building technologies has led to a significant reduction in energy use, highlighting the potential of sustainable design for creating energy-efficient structures (Merabet et al., 2021). Bo01 in Malmö, Sweden, exemplifies how sustainable urban design can foster vibrant, walkable neighborhoods (Bae, 2021). Bo01 features mixed land use, green spaces, and pedestrian-friendly planning. The community emphasizes energy-efficient buildings, renewable energy sources, and sustainable transportation options. This approach results in a neighborhood that encourages walking and cycling, enhances community spirit, and reduces the environmental impact typically associated with car-centric urban planning (Bozovic et al., 2021). These case studies and examples underscore the tangible successes of sustainable urban design and eco-friendly building practices worldwide (Alkhani, 2020). From Vauban's car-free neighborhood in

Germany to Masdar City's ambitious carbon-neutral goals in the UAE, these projects highlight the diverse and adaptable nature of sustainable urban solutions. The positive results seen in initiatives like BedZED, The Edge, and Bo01 further demonstrate how eco friendly building practices can enhance air and water quality, reduce energy consumption, and foster vibrant, walkable communities (Callender, 2021). As cities confront the dual challenges of rapid urbanization and environmental sustainability, these success stories offer valuable inspiration (Mani et al., 2023). They illustrate that a harmonious balance between urban development and ecological responsibility is not only achievable but also beneficial for both community well-being and planetary health. By drawing lessons from these examples, urban planners, architects, and policymakers can gain insights for creating future cities where sustainability is seamlessly integrated into thriving urban environments (Singh, 2023).

Case study B :

global high-tech company originating from Taiwan

that specialises in production of mobile phone parts and semiconductor technology. The interview was

conducted with Company B's branch base in Henan Province, China and should be seen as the subject

of the interviews. As a mature company, Company B implements a corresponding eco-design strategy

for its new products and has its own set of eco-design solutions. In the product development stage, they

consider selecting materials with low environmental impact and aim to minimise the use of materials,

while continuously optimising production technology.

As a national company, Company A reports that it has always fulfilled its social and environmental

responsibilities and advocated green operations. Focusing on the corporate goal of "energy saving,

emission reduction, greening and recycling", Company A has established environmental protection

associations to respond to the call for environmental protection. While meeting the environmental

protection requirements of international customers, the company assumes social responsibility and

makes its own contribution to environmental protection.

In order to increase employees' environmental awareness, Company B advocates that all employees

participate in the sustainable development theme. The company regularly holds lectures to employees

and organises environmental protection exchange conferences. At the same time, the interviewees

declare that the company invests large amounts of money every year in environmental protection work

such as park greening and waste recycling.

Company B insists on independent research and development in production, actively uses the most

advanced technology to promote environmental protection. In the product development stage, it integrates the entire life-cycle of the product. In the process of implementing eco-design, the company

mainly focuses on the three stages of product demand analysis, requirement analysis and specific implementation process analysis.

In the product development stage, the product will be developed with consideration for its entire life-

cycle. Furthermore, the process of implementing eco-design is mainly concentrated in the three stages

of market demand analysis, product requirement analysis, and specific implementation process analysis.

24

Before implementing eco-design, an analysis of the basic needs of the market are conducted by investigating the current market environment. Then, the company improves and innovates based on the

performance and cost requirements of the product itself. Finally, the products are redesigned by adopting appropriate eco-design measures.

Recommendations

Cities should adopt comprehensive urban policies that emphasize sustainability by integrating eco-friendly building practices and community-focused design. These policies need to address the interconnectedness of environmental, social, and economic factors to create holistic and resilient urban environments. Governments and municipalities can incentivize developers to embrace green building practices through tax breaks, grants, or other financial incentives linked to achieving and maintaining recognized green building certifications. Such measures encourage private sector involvement in sustainable urban development.

Urban planners and architects should conduct inclusive design workshops that actively involve local communities. This participatory approach ensures that a range of perspectives and needs are incorporated into the planning process, fostering a sense of ownership and community pride. Investment in efficient and accessible public transportation systems should be a priority for sustainable urban design. By reducing dependence on private vehicles, cities can lower carbon emissions, alleviate traffic congestion, and improve overall mobility for residents. Zoning regulations should promote mixed-use developments that blend residential, commercial, and recreational spaces. This strategy not only minimizes commuting needs but also creates vibrant,

walkable neighborhoods that enhance social interactions and community engagement. Finally, governments and institutions should allocate resources for research and innovation in sustainable urban design. Supporting projects that explore new eco-friendly building materials, energy-efficient technologies, and inventive methods for enhancing community well-being within urban areas will drive progress in creating more sustainable and equitable cities

Conclusion Sustainable Urban Design, with its emphasis on eco-friendly building practices and community impact

In conclusion, it represents a pivotal shift in how we approach the development of urban landscapes. As urbanization accelerates, the demand for sustainable solutions becomes increasingly urgent to address environmental challenges, enhance community well being, and promote social equity. The adoption of renewable energy sources, green building materials, and energy-efficient technologies showcases a strong commitment to minimizing the environmental footprint of urban development. Case studies from Vauban to Masdar City illustrate the global success of sustainable urban design, demonstrating that innovative and eco-friendly practices can be effectively applied across various cultural and geographical contexts. Locally, projects like BedZED, The Edge, and Bo01 highlight the tangible benefits of sustainable urban design. Improved air and water quality, reduced energy consumption, and the creation of vibrant, walkable neighborhoods show that these practices not only reduce environmental impact but also significantly enhance residents' quality of life. The recommendations provided aim to steer future urban development towards greater sustainability. By incorporating these guidelines into urban planning and policymaking, cities can evolve into more resilient, inclusive, and environmentally conscious places. Sustainable Urban Design is not merely an ideal; it is a practical and achievable approach that addresses current needs while safeguarding the future. In summary, as we grapple with the complexities of urbanization, Sustainable Urban Design emerges as a beacon of hope. It offers a roadmap for creating cities that prioritize the well-being of both their residents and the planet. Through collaboration, innovation, and a steadfast commitment to sustainability, cities can transform into not just centers of economic activity but also models of harmony between human civilization and the environment.

References

- [1] lbrechts, L., Barbanente, A., & Monno, V. (2020). Practicing transformative planning: the territory-landscape plan as a catalyst for change. City, Territory and Architecture, 7, 113.
- [2] Alkhani, R. (2020). Understanding private-sector engagement in sustainable urban development and delivering the climate agenda in northwestern Europe—A case study of London and Copenhagen. Sustainability, 12(20), 8431.
- [3] Bae, J. (2021). How urban neighborhood design can support healthy and sustainable living (Master's thesis).
- [4] Bardhyl, R. (2023). Ecodistricts-principles of planning and designing based on case studies.
- [5] Botchwey, N., Dannenberg, A.L., & Frumkin, H. (2022). Making healthy places: designing and building for well being, equity, and sustainability. Island Press.
- [6] Bozovic, T., Hinckson, E., Stewart, T., & Smith, M. (2021). How to improve the walking realm in a car-oriented city?(Dis) agreements between professionals. Transportation Research Part F: Traffic Psychology and Behaviour, 81, 490-507.
- [7] Callender, J. (2021). Building Cities to LAST: A Practical Guide to Sustainable Urbanism. Routledge.
- [8] Carmona, M. (2021). Public places urban spaces: The dimensions of urban design. Routledge.
- [9] Dahiya, B., & Das, A. (2020). New urban agenda in Asia-Pacific: governance for sustainable and inclusive cities (pp. 3-36). Springer Singapore.
- [10] Dou, J. (2021). Comparative analysis of indicators and variables that define or categorize a city as" Green City": study the cities of Reykjavik, Malmö, Vancouver, Seoul, Copenhagen, and Singapore (Master's thesis, Universitat Politècnica de Catalunya).
- [11] Friedman, A. (2020). Fundamentals of sustainable urban design. Springer Nature.
- [12] Gaudette, T., Scrivens, R., Davies, G., & Frank, R. (2021). Upvoting extremism: Collective identity formation and the extreme right on Reddit. New Media & Society, 23(12), 34913508.
- [13] Harris, E., Franz, A., & O'Hara, S. (2023). Promoting social equity and building resilience through value-inclusive design. Buildings, 13(8), 2081.
- [14] Heifetz, I., & Jaffe, P.G. (2023). Exploring the impact of industrialization on social mobility in rural com-munities: towards inclusive and sustainable economic transformation. Law and Economics, 17(3), 218-236.
- [15] Hub, G.D.I. (2021). Inclusive design and accessibility of the built environment in Varanasi, India. [16] Johnson, A., Tucker, R., Chau, H.W., & Jamei, E. (2022). Accessible and inclusive cities: Exposing design and leadership challenges for Bunbury and Geelong.
- [17] Khan, A., & Ali, A. (2023). The interplay between urban environment and mental health: a comprehensive examination and policy roadmap. Journal of Human Behavior and Social Science, 7(7), 1-18.

- [18] Korbelyiova, L., Malefors, C., Lalander, C., Wikström, F., & Eriksson, M. (2021). Paper vs leaf: Carbon footprint of single-use plates made from renewable materials. Sustainable Production and Consumption, 25, 77-90.
- [19] Kumar, R., Gupta, S.K., Wang, H.C., Kumari, C.S., & Korlam, S.S.V.P. (2023). From Efficiency to sustainability: exploring the potential of 6g for a greener future. Sustainability, 15(23), 16387.
- [20] Lak, A., Hasankhan, F., & Garakani, S.A. (2020). Principles in practice: Toward a conceptual framework for resilient urban design. Journal of Environmental Planning and Management, 63(12), 2194-2226.
- [21] Mani, Z.A., & Goniewicz, K. (2023). Adapting disaster preparedness strategies to changing climate patterns in Saudi Arabia: A rapid review. Sustainability, 15(19), 14279.
- [22] Merabet, G.H., Essaaidi, M., Haddou, M.B., Qolomany, B., Qadir, J., Anan, M., Al-Fuqaha, A., Abid, M.R., & Benhaddou, D. (2021). Intelligent building control systems for thermal comfort and energy-efficiency: A systematic review of artificial intelligence-assisted techniques. Renewable and Sustainable Energy Reviews, 144, 110969.
- [23] Mirzabeigi, S., & Razkenari, M. (2022). Design optimization of urban typologies: A framework for evaluating building energy performance and outdoor thermal comfort. Sustainable Cities and Society, 76, 103515.
- [24] Mondal, S., & Palit, D. (2022). Challenges in natural resource management for ecological sustainability. In Natural Resources Conservation and Advances for Sustainability (pp. 29-59). Elsevier.
- [25] Monroy, A.M., Gars, J., Matsumoto, T., Crook, J., Ahrend, R., & Schumann, A. (2020). Housing policies for sustainable and inclusive cities: How national governments can deliver affordable housing and compact urban development.
- [26] Mouratidis, K., & Poortinga, W. (2020). Built environment, urban vitality and social cohesion: Do vibrant neighborhoods foster strong communities?. Landscape and Urban Planning, 204, 103951. [27] Mouratidis, K. (2021). Urban planning and quality of life: A review of pathways linking the built environment to subjective well-being. Cities, 115, 103229.
- [28] Murtagh, N., Scott, L., & Fan, J. (2020). Sustainable and resilient construction: Current status and future challenges. Journal of Cleaner Production, 268, 122264.
- [29] Ndukwu, M.C., Onwude, D.I., Bennamoun, L., Abam, F.I., Simo-Tagne, M., Horsfall, I.T., & Briggs, T.A. (2021). Nigeria's Energy deficit: The challenges and Eco-friendly approach in reducing the energy gap. International Journal of Sustainable Engineering, 14(3), 442-459.
- [30] Omer, M.A., & Noguchi, T. (2020). A conceptual framework for understanding the contribution of building materials in the achievement of Sustainable Development Goals (SDGs). Sustainable Cities and Society, 52, 101869.
- [31] Østerud, K.L., & Vedeler, J.S. (2022). Disability and regulatory approaches to employer engagement: Cross national challenges in bridging the gap between motivation and hiring practice. Social Policy and Society, 1-17.

- [32] Pineo, H. (2022). Towards healthy urbanism: inclusive, equitable and sustainable (THRIVES)– an urban design and planning framework from theory to praxis. Cities & Health, 6(5), 974-992.