

Designing with purpose: The advocacy for sustainable and resilient architecture

Ioana-Andreea DOGEANU,

Assistant Professor PhD at SNSPA, Bucharest, Romania

ioana.dogeanu@administratiepublica.eu

Abstract

This paper examines the critical role of advocacy in advancing sustainable and resilient architecture. It aims to show how architects, through advocacy, can influence policy, design, and community engagement to address climate change and urban challenges. This research builds on existing concepts of sustainable development, resilient design, and advocacy within architectural practices. Previous studies have addressed the technical aspects of sustainable architecture, yet few have emphasized the advocacy role that architects must play in shaping sustainable cities. A mixed-method approach was used, featuring case studies of sustainable architectural projects and discussions with architects leading advocacy efforts. Comparative analysis highlights the impact of these advocacy strategies on policy and community outcomes. Advocacy-driven architecture accelerates the adoption of sustainable practices and leads to stronger community support. Architects who engage in advocacy also influence policy changes and secure resources for sustainable projects. This study provides valuable insights for academics, researchers, and practitioners by highlighting the essential role of advocacy in promoting sustainable architecture. It encourages a more active role for architects in policy-making and public discourse on environmental issues. This paper offers a fresh perspective by positioning advocacy as a key driver of sustainable and resilient architecture, bridging design with impactful policy influence. It offers a well-researched framework that combines design innovation with policy influence, positioning architects as key agents in the global sustainability agenda.

Keywords: Sustainability, Advocacy, Sustainable Development Goals.

1. Introduction

In a world facing growing environmental challenges, the need for sustainable and resilient architecture has never been more urgent. This article, "Designing with Purpose: The Advocacy for Sustainable and Resilient Architecture", explores the critical role of architecture in addressing global sustainability goals.

We will examine the concept of sustainable development through the lens of the Sustainable Development Goals (SDGs), discuss how advocacy efforts drive the success of these goals, and explore the journey from advocacy to the creation of effective sustainability policies. Ultimately, the current paper demonstrate how purposeful design can shape a more resilient and sustainable future for all.

The hypothesis is: "Advocacy for resilient architecture plays a crucial role in promoting the adoption of sustainable design practices and influencing policy changes that address the impacts of climate change on urban environments. By effectively engaging stakeholders and utilizing communication strategies, advocacy can bridge the gap between innovative design and its real-world implementation".

The research questions are: "What are the challenges and opportunities for architects and advocacy groups in promoting resilient architecture through public policy and public engagement, and how can these efforts be scaled for broader impact?"; and "How do

advocacy efforts influence the integration of resilient architectural practices into urban planning and policy frameworks, particularly in climate-vulnerable regions?".

These questions guide research into the role of advocacy in shaping the built environment's response to climate change and resilience, exploring both the practical and political aspects of implementing resilient architectural solutions.

The success of sustainable architecture relies on continuous advocacy, policy support, and the collaboration of all involved parties. The results of the analyses will be found at the end in the conclusions section.

2. Sustainable and resilient architecture: Responding to an urgent global demand

Advocacy in architecture involves the combined efforts of architects, professional organizations, and other stakeholders to advance policies and initiatives that benefit the field and positively shape the built environment [1]. In recent years, architecture advocacy has grown significantly, fueled by several key factors: Health and Well-being; Economic Development; Sustainability and Cultural Identity [1].

Advocacy involves actions aimed at highlighting overlooked or invisible issues, with the goal of shaping public attitudes and influencing political decision-makers [2]. It is defined as the process through which organized citizens impact decision-makers to make choices on matters of public interest [2].

Advocacy plays a crucial role in architecture by raising awareness, shaping policies, and driving progress toward building practices that are more sustainable, resilient, and equitable. Architects, designers, and industry professionals possess specialized insights into how our built environments affect both people and the natural world. By promoting sustainable design, they can help shift public perception, guide policymakers, and lead the industry toward responsible solutions that tackle pressing challenges such as climate change, social inequities, and resource scarcity.

In the same way, social responsibility in architecture is important because it ensures that buildings and spaces serve not just aesthetic or economic goals, but also the well-being, equity, and resilience of the communities they inhabit.

Social responsibility has become increasingly central to corporate and financial practices, driven by globalization and socio-political pressures [3]. The 2008-2009 World Financial Crisis, which led to government interventions in the banking sector, marked a turning point, sparking calls for an "Age of Responsibility" in finance [3]. Leaders like President Barack Obama and World Bank President, Robert Zoellick, emphasized the need for ethical corporate behavior and socially responsible investments as pathways to societal progress [3]. This shift highlights Financial Social Responsibility (FSR), where investors consider social, environmental, and ethical factors alongside profits [3]. In today's socio-economic climate, FSR is seen as a crucial strategy to rebuild trust in financial markets and prevent future crises [3].

By integrating social responsibility into architectural practice, architects can create environments that are safe, accessible, and inclusive for all, addressing societal challenges and improving quality of life.

Politics is defined as the processes and principles by which individuals, governments, communities, and organizations establish policies and rules for governance [4].

Markets and geopolitical dynamics are increasingly shaping sustainable development efforts, complementing traditional government-led initiatives [4].

While governments, NGOs, and civil society have historically driven sustainable development, market opportunities are now attracting private sector investment [4]. Examples include products like solar mobile chargers and large-scale projects like wind farms and green tourism [4]. Businesses are increasingly demanding policies that ensure stable markets while supporting sustainable development [4].

Traditional international development frameworks, led by institutions like the UN and Bretton Woods organizations, have struggled to accelerate sustainable progress [4]. However, shifting geopolitical landscapes present opportunities for new institutions - especially in emerging economies like China and the Arab states - to lead with innovative approaches [4]. These new players, unburdened by legacy systems, are positioning environmental and natural capital at the core of their strategies, particularly in renewable energy investments [4].

The Sustainable Development Goals (SDGs) are seen as a transformative framework for shaping development decisions and economic systems globally [4]. However, their success depends on governments aligning these goals with national priorities and using them as political tools rather than just aspirational targets [4]. For the SDGs to drive meaningful change, they must integrate into political processes and decision-making across various sectors, including civil society, business, and government [4].

The report highlights that progress on sustainable development has historically fluctuated due to political dynamics [4]. The SDGs emerged from this complex landscape and must now navigate challenges posed by global upheavals and conflicting priorities [4]. For the SDGs to become effective, they must gain traction in the political economy, influencing governance, leadership, and socio-economic structures [4].

Key findings include: Institutional Integration; Challenges in Policy Coherence; Political and Structural Barriers [4].

Institutional Integration: some countries, like Botswana and Colombia, have embedded sustainable development principles into national planning [4]. However, broad adoption remains limited, often constrained by structural barriers and competing policy priorities [4].

Challenges in Policy Coherence: while sustainable development influences planning, it has less impact on macroeconomic policies and high-level decision-making [4]. This disconnect stems from differing views on development, with some emphasizing fiscal stability over social and environmental goals [4].

Political and Structural Barriers: inter-ministerial competition and siloed approaches hinder policy integration, making it difficult to achieve the holistic planning required by the SDGs [4].

The briefing underscores the need for a political economy approach, viewing the SDGs as tools for navigating complex power structures and fostering cross-sector collaboration [4]. Only by addressing political, economic, and institutional dynamics can the SDGs effectively drive sustainable development [4].

3. The concept of sustainable development as interpreted in the SDGs

The concept of sustainable development, as outlined in the SDGs, builds on the 1987 Brundtland Report's definition: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs [4]." Though not explicitly redefined, its meaning has evolved and can be summarized as follows: universally applicable, primary goal, equity and inclusion, inequality reduction, ecological limits, global cooperation [4].

Universally applicable: sustainable development integrates economic prosperity, environmental sustainability, social progress, and democratic governance [4]. Primary goal: Improving people's lives and opportunities, both now and in the future [4]. Equity and inclusion: Benefits and costs are shared fairly, ensuring no one is left behind [4]. Inequality reduction: A focus on minimizing social and economic disparities [4]. Ecological limits: Development respects and preserves natural systems [4]. Global cooperation: International relations emphasize collaboration and respect for national sovereignty over competition [4].

Sustainable development has remained a key development model for over 30 years, driven by high-level champions advocating for structural and institutional reforms [4]. Its success often depends on consistent and long-term political support, which can create a resilient policy foundation that endures through crises and government changes [4].

Costa Rica has achieved lasting progress due to nature tourism, financial incentives for forest conservation, and its reputation as a global leader in environmental protection [4]. Finland has embedded sustainable development into its social contract through high-level leadership and stakeholder engagement since the 1990s, with the prime minister-led commission aligning strategies with the SDGs [4]. In contrast, the Philippines experiences fluctuating progress, as each administration sets its own policies, making sustainable development reliant on the vision of individual presidents [4].

In the book "Sustainable Construction Techniques" by El Khouli, John, and Zeumer, focusing on the challenges and opportunities in sustainable construction [5]. It outlines the

pressing need to reduce environmental impacts in the built environment due to resource depletion, carbon emissions, and waste [5]. The authors emphasize how sustainable construction integrates ecological, social, and economic considerations [5].

Political leaders' decisions on sustainable development are shaped by various factors, including public opinion, market forces, and geopolitical dynamics [4].

Public Opinion: While societal demand rarely drives progress directly, sustainable development gains traction when framed as local, tangible issues [4]. For example, public mobilization around climate change has influenced policy in many regions [4].

Inequality: Economic and social disparities also fuel public demand for change, though solutions are not always well-defined [4]. Concepts like a "fair economy" tend to resonate more with the public than abstract ideas like a "green economy" [4].

These dynamics highlight the importance of connecting sustainable development to relatable, local concerns to foster public engagement and political action [4].

To advance the SDGs, two key political opportunities stand out [4].

First, inter-ministerial cooperation must be incentivized to avoid the compartmentalization of SDGs [4]. Effective models include high-level platforms led by prime ministers or senior politicians, supported by oversight mechanisms like cabinet committees or councils, as seen in Finland [4].

Second, political leaders need to view sustainable development as a practical tool for achieving core objectives like economic growth and job creation, rather than mere rhetoric [4]. Providing solid evidence of successful outcomes can help build this belief [4].

Ultimately, achieving the SDGs will require a combination of state, market, technology, and citizen-driven efforts, with adaptable strategies to navigate complex global challenges, including political shifts and social tensions [4].

The design of urban spaces is closely connected to the challenges posed by climate change, which, though more immediately threatening, shares a relationship with urban risks and vulnerabilities [6]. Environmental disasters and cities' exposure to these risks are well-documented, with urban transformations often contributing to this increased fragility [6].

3. How advocacy drives the success of the SDGs

The role of advocacy in sustainable development is crucial for driving political commitment, fostering collaboration, and ensuring the effective implementation of the SDGs. Advocacy serves to: raise awareness and mobilize support, influence policy and decision-making, encourage accountability, bridge gaps across sectors, and promote equity and inclusion.

Raise Awareness and Mobilize Support: it helps translate complex sustainable development concepts into relatable issues, engaging the public, policymakers, and stakeholders.

Influence Policy and Decision-Making: by presenting evidence and highlighting best practices, advocacy pushes for policies that integrate sustainability into national and local agendas.

Encourage Accountability: advocacy holds governments and institutions accountable for their commitments, promoting transparency and progress tracking.

Bridge Gaps Across Sectors: it fosters collaboration between governments, businesses, civil society, and international organizations, breaking down silos and encouraging holistic approaches.

Promote Equity and Inclusion: advocacy ensures that vulnerable and marginalized communities are not left behind, aligning with the SDG principle of leaving no one behind. Smart cities must prioritize people-centered policies that foster dynamic career ecosystems, balancing individual well-being with systemic needs [7]. The key to success lies in sustainable careers that promote employability, adaptability, and thoughtful career choices [7]. By leveraging innovation and technology, smart cities can support job creation across skill levels, from Information and Communication Technology (ICT) professionals to essential service providers, ensuring that all roles contribute to urban functionality [7].



Fig. 1: How Sustainable Buildings

Source: <https://worldgbc.org/article/how-sustainable-buildings-are-buildingresilience-and-driving-the-sustainable-development-goals/>

Sustainable career development in smart cities involves collaboration between individuals, organizations, and policymakers [7]. This requires investment in education and lifelong learning, particularly for youth, to address employment challenges and equip them with the

digital skills needed for future jobs [21]. Ultimately, smart cities should act as inclusive ecosystems that support long-term career growth, resilience, and economic prosperity for all citizens [7].

Climate change highlights architecture's vulnerability to natural disasters and the need for adaptable infrastructure [8]. Current building practices must evolve to address changing climate conditions, ensuring that structures can withstand year-round and evolving weather patterns [8]. Building resilience involves a comprehensive approach that includes engineering, environmental, and policy measures, aiming not only for prevention but also for anticipation and long-term durability [8].

In the social structure, information and communication technologies (ICT) reshape power dynamics, empowering individuals to challenge traditional centralized hierarchies [9]. These technologies enable consumers to bypass established authorities, allowing them to share power and participate on a more equal footing [9]. As a result, the flow of information takes precedence over the control of power, emphasizing dynamic networks over rigid structures [9].

Kitchin, Lauriault, and McArdle conclude that urban data is inherently political and cannot be considered a neutral tool for governance [10]. The framing, collection, and interpretation of data are deeply influenced by socio-political contexts, technological limitations, and power structures [10]. While data-driven tools like urban dashboards promise efficiency and objectivity, they often simplify complex urban realities and can perpetuate existing inequalities. For example: Dublin Dashboard - the development of the Dublin Dashboard is used as a case study [10]. This open-access platform provides real-time data and visualizations about the city [10]. However, the authors emphasize that even such tools reflect strategic decisions and political considerations in their design [10].

The authors advocate for a critical examination of data practices, emphasizing the need to recognize and address the biases embedded in smart city technologies [10]. The term "smart city" lacks a universal definition due to its diverse applications across contexts, but generally, it encompasses the integration of information and communication technologies (ICT) to enhance urban services and quality of life [11]. Technological integration in a Smart City leverages Information and Communication Technology (ICT) and other innovative solutions to efficiently manage urban assets [12]. These assets include public information platforms, educational institutions, libraries, transportation networks, healthcare facilities, power grids, water supply systems, waste management, law enforcement, and various community services [12]. The primary objectives are to enhance service quality, minimize costs, optimize resource usage, and foster better interaction between citizens and government authorities [12].

A "Smart City" is not limited to the integration of technology into urban infrastructure to improve quality of life, operational efficiency, and competitiveness [12]. The concept goes beyond technological advancements, encompassing sustainable practices, active citizen engagement, and other critical elements that contribute to a city's smart status [12].

Research highlights innovation as a key driver in the development of smart cities [13]. Benbunan-Fich, Desouza, and Normann Anderson view smart cities as hubs for both technological and social innovation, emphasizing their role in enhancing productivity, sustainability, and quality of life [13]. Paskaleva and Cooper stress the importance of open, internet-enabled innovation to improve service delivery in modern cities [13]. The growing trend sees the public sector embracing IT innovations to better serve citizens, marking a significant shift towards digital transformation [13].

Policymakers and stakeholders should adopt a more nuanced approach, ensuring that data-driven governance promotes inclusivity and reflects the diverse needs of urban populations [10]. Equally significant is social innovation, which emphasizes citizen participation and collaborative governance [14]. The involvement of residents and stakeholders fosters more inclusive and adaptive urban solutions [11].

Resilient architecture is crucial for protecting lives, minimizing environmental impact, and ensuring economic stability, especially in regions like MENA (the Middle East and North Africa), which face rising temperatures, humidity, and increased rainfall [8]. Adopting strategies to enhance building durability, such as innovative design and technology, can transform urban spaces into safe, functional, and sustainable environments [8].

The role of materials in sustainable construction is highlighted, focusing on their life cycles and impact on the environment [15].

The "triple bottom line" in sustainable development includes physical, economic, and social benefits, often described in terms of health, comfort, and happiness [16]. Vitruvius' tripartite model links these elements to building design: firmness (health), commodity (comfort), and delight (happiness) [16]. While health is typically measured by physical symptoms, comfort involves both psychological and physical factors [16]. Happiness is a subjective measure of emotional well-being [16]. Quantifying health and well-being, particularly in terms of air quality and building design, is a challenge but essential for assessing overall design effectiveness [16].

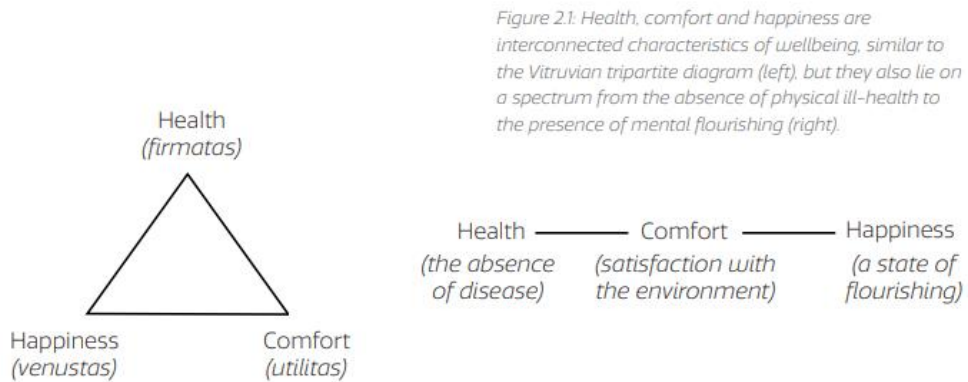


Fig. 2: Health, Comfort and Happiness

Source: Baker, N. & Steemers, K. (2019). “Healthy Homes – Designing with light and air for sustainability and wellbeing”, p. 29

Key strategies for climate-resilient design include elevating buildings to avoid flood risks, integrating efficient drainage systems, using durable materials like reinforced concrete and steel, and incorporating smart technologies for real-time monitoring of building conditions [8]. Interdisciplinary collaboration between architects, engineers, urban planners, and emergency managers is essential for effective solutions [8].



Fig. 3: Building Resilience to Climate Change

Source: <https://worldgbc.org/article/how-sustainable-buildings-are-buildingresilience-and-driving-the-sustainable-development-goals/>

Healthcare facilities, particularly hospitals, require special focus, with measures such as elevating equipment and installing advanced drainage systems to ensure continuous operation during disasters [8]. By rethinking design practices and incorporating climate-resilient features, architects play a key role in mitigating climate change impacts and creating a safer, more sustainable built environment [8].

Rethinking cities as thriving communities requires integrating sustainability, innovation, and information technology into urban planning and design [17]. Cities play a vital role in shaping social and economic dynamics, acting as engines of growth and development within global and regional ecosystems [17]. To foster sustainable urban growth and competitiveness, cities must adopt continuous innovation and prioritize knowledge-based strategies [17].

Sustainable cities promote environmental responsibility, inclusivity, and the creation of civic values [17]. They drive innovation by fostering knowledge creation, intellectual capital, and smart urban services [17]. The future of cities lies in adopting smart approaches that support social, economic, and environmental sustainability, enhancing the quality of life and fostering long-term prosperity [17].

Resilient design offers both economic and intangible benefits [18]. Economically, it can lower insurance premiums and maintenance costs [18]. Intangible benefits include enhanced personal safety, business continuity, peace of mind, and protection of irreplaceable belongings [18].

"Smart city" initiatives have significant economic implications, including business growth, job creation, talent development, and productivity enhancement [19]. They can drive local economic revitalization by fostering innovation, attracting investment, and leveraging local talent [19]. The smart city model promotes operational efficiency and partnerships, creating a collaborative and user-driven economy [19].

However, these developments also raise concerns about cybersecurity, particularly in critical infrastructure, and the potential for widening socioeconomic divides [20]. While smart cities offer solutions for economic recovery and growth, they also pose challenges related to equity and privacy, requiring careful management to ensure inclusive and secure urban development [19].



Fig. 4: Building Resilience for Economies

Source: <https://worldgbc.org/article/how-sustainable-buildings-are-building-resilience-and-driving-the-sustainable-development-goals/>

Building codes ensure occupant safety and egress but do not consider ongoing use or repair costs [18]. Resilient design, above the minimum code requirements, provides enhanced protection, such as building structures at higher elevations in flood zones or using stronger materials for earthquake resistance and fire protection, significantly reducing disaster damage [18].

Traditional methods often rely on local, natural materials and passive design strategies, while innovations introduce modern solutions like smart materials and energy-efficient systems [15]. Various tools and software for ecological assessment are increasingly common, including energy modeling software and databases for material environmental profiles [15]. These tools assist designers in making data-driven decisions to optimize building performance [15].

Also, concepts like modular construction, prefabrication, and adaptive reuse are highlighted as ways to reduce material consumption and enhance efficiency [5].

The cost of resilient design varies depending on the type of disaster and the level of resilience needed [18]. Typically, building above code standards requires an additional 2% investment, but this can provide substantial returns in disaster situations [18].

In "From Making Digital Architecture to Making Resilient Architecture", the authors Sheil, Burry, Sabin, and Skavara argue that the future of architecture must combine digital design with principles of resilience to address the growing challenges posed by climate change and natural disasters [20]. They suggest that resilient architecture must not only utilize advanced digital technologies but also prioritize sustainability and adaptability [20]. This includes designing buildings that can withstand environmental stresses and recover quickly from disruptions [20]. The role of digital fabrication technologies, such as 3D printing and

parametric design, in creating buildings that are both efficient and responsive to environmental changes [20]. These technologies enable the production of customized building components that enhance durability and performance [20].

Several drivers propel smart city initiatives, including economic imperatives, environmental concerns, and social needs [14]. Key actors include governments, private sector innovators, and community organizations [11]. Collaborative efforts between these groups are crucial for implementing effective smart city strategies [11].

The need for a shift in architectural practices that moves beyond traditional design methods, promoting a more adaptive, sustainable, and resilient built environment capable of enduring unpredictable future challenges [20].

Many professionals in the field advocate for design strategies that prioritize resource efficiency [15]. These include passive solar design, natural ventilation, and the integration of renewable energy sources [15].

In essence, advocacy transforms sustainable development from a theoretical framework into actionable policies and societal change.

4. From advocacy to sustainability policies

Sustainable architecture goes beyond energy efficiency or ecological building, encompassing economic, ecological, and social dimensions in an interconnected way [21]. Key frameworks, like Germany's three-pillar model and Swiss SIA 112/1, guide sustainable practices, focusing on: society and industry [21].

Society emphasizes integration, participation, and well-being, though often assessed qualitatively [21].

Industry advocates life-cycle cost analysis, balancing initial investments with long-term operational expenses [21].

The growing importance of digital transformation, along with its technological potential and economic influence, has prompted policymakers and administrators in German cities and municipalities to engage with the concept of the "Smart City" [22]. This collaboration involves both national and international technology companies and research institutions [22]. While large technology firms, offering state-of-the-art ICT solutions directly to cities and municipalities, have been key drivers of this shift, "pioneer cities" like Hamburg and Berlin have emerged as leading adopters and innovators [22].

Beyond technological advancements, the political discourse in Germany focuses on the normative understanding of the Smart City concept, its practical implementation tailored to urban specifics, and the standardization of solutions [22].

The goal is to align architecture with societal values and sustainability for lasting impact and innovation as you can see in the figure below [21].

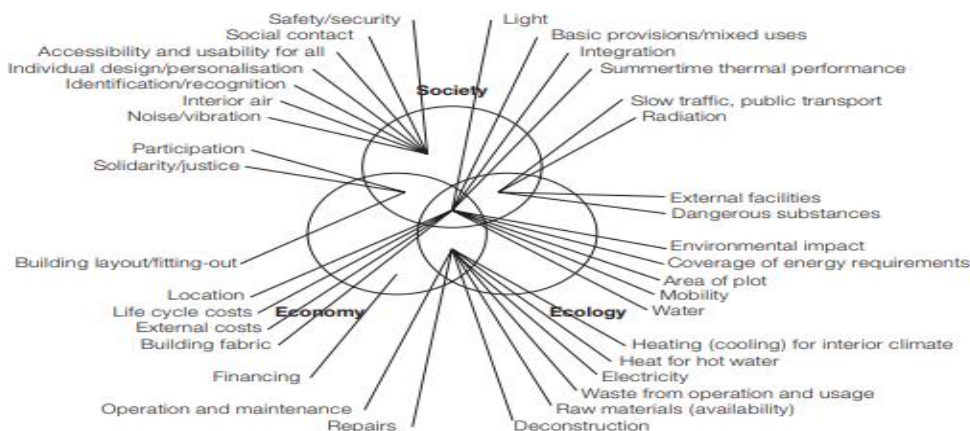


Fig. 5: The Three Pillars: Society, Economy and Ecology

Source: Hegger, M., Fuchs, M., Stark, T., and Zeumer, M. (2008). "Energy Manual – Sustainable Architecture", Edition Detail, Munich, p. 192.

In the context of sustainable building practices, various environmental certification systems have been developed to assess and improve the ecological performance of buildings. Among the most recognized are MINERGIE-ECO, BREEAM and LEED. These systems evaluate buildings based on criteria such as energy efficiency, environmental impact, and occupant well-being. By providing structured frameworks, these certifications encourage developers, architects, and planners to integrate sustainability into their designs, contributing to a more eco-friendly and resource-efficient built environment.

MINERGIE-ECO is a Swiss certification method used since 2006 for offices, schools, and multi-occupancy buildings, focusing on energy efficiency, comfort, health, and building ecology [21]. It builds upon the MINERGIE standard by including criteria like light, noise, interior air quality, raw materials, and energy use [21]. To earn the label, buildings must meet exclusion criteria (e.g., no biocides) and achieve at least two-thirds of the requirements, including a 25% reduction in overall energy use and a 50% reduction in fossil energy consumption [21].

BREEAM (Building Research Establishment Environmental Assessment Method) was developed in the 1990s in the UK, and is now used globally to assess various building types [21]. It awards points across eight categories, including energy, health, and water, with certificates ranging from "pass" to "excellent" [21].

Similarly, LEED (Leadership in Energy & Environmental Design), introduced in 1995 in the US, is now also widely used internationally [21]. It offers certifications based on points across six categories like water efficiency and energy, with ratings from "certified" to "platinum" [21]. All systems aim to improve environmental performance in construction [21].

In conclusion, sustainable building certification systems such as BREEAM, LEED and MINERGIE-ECO are essential tools in promoting environmentally conscious construction practices.

5. Conclusion

In conclusion, the role of advocacy in resilient architecture is essential for promoting sustainable design and influencing policies that address climate change.

The hypothesis: "Advocacy for resilient architecture plays a crucial role in promoting the adoption of sustainable design practices and influencing policy changes that address the impacts of climate change on urban environments. By effectively engaging stakeholders and utilizing communication strategies, advocacy can bridge the gap between innovative design and its real-world implementation", is confirmed.

Advocacy for resilient architecture is essential in promoting the adoption of sustainable design practices and influencing policy changes. Through effective stakeholder engagement and strategic communication, advocacy can bridge the gap between innovative architectural solutions and their real-world implementation. By raising awareness, advocating for supportive policies, and demonstrating the practical benefits of resilient design, these efforts help address climate change impacts on urban environments and ensure the widespread integration of sustainable building practices.

Advocacy for resilient architecture plays a vital role in promoting sustainable design practices, with systems like BREEAM, MINERGIE-ECO and LEED serving as critical tools in this effort. These certification systems guide architects and planners by setting clear sustainability criteria, influencing policies and practices that address climate change. By advocating for these standards, stakeholders can bridge the gap between innovative designs and real-world implementation, ensuring that resilient architecture is adopted more broadly, thus fostering urban environments that are both sustainable and climate-resilient.

Related to the two research questions presented in the introduction of this article, for the first question: "What are the challenges and opportunities for architects and advocacy groups in promoting resilient architecture through public policy and public engagement, and how can these efforts be scaled for broader impact?"; we can say that architects and advocacy groups face challenges such as limited public awareness and political resistance when promoting resilient architecture. However, they have opportunities to collaborate with local communities, influence public policy, and advocate for climate-responsive building practices. Scaling these efforts involves leveraging data-driven strategies, forming coalitions, and engaging the public through education and outreach to build momentum and drive policy change.

For the second research question: "How do advocacy efforts influence the integration of resilient architectural practices into urban planning and policy frameworks, particularly in climate-vulnerable regions?"; advocacy efforts can significantly impact the integration of resilient architecture in urban planning, particularly in climate-vulnerable regions, by raising awareness of the risks posed by climate change. Advocacy groups play a crucial

role in shaping policies that prioritize sustainable, adaptive design, encouraging the incorporation of resilient practices into regulatory frameworks, ensuring long-term sustainability and protection against natural disasters.

By effectively engaging stakeholders and utilizing communication strategies, advocacy efforts help bridge the gap between innovative design concepts and their practical implementation, ensuring that resilient architecture becomes a core component of climate-responsive urban development.

References

- [1] "f.a., Rethinking The Future.," *Public Policy and Advocacy in Architecture*, 2024.
- [2] Irimieș and C., "Lobbying," p. 18, 2015.
- [3] Puaschunder and J. M., "On the Emergence, Current State, and Future Perspectives of Socially Responsible Investment (SRI)," *Consilience*, vol. 16, p. 38–63, 2016.
- [4] Bigg and T., *Reconceiving the SDGs as a political force for change*. International Institute for Environment and Development, 2016.
- [5] E. Khouli, S., V. John, a. Zeumer and M., "Sustainable Construction Techniques – From structural design to interior fit-out: Assessing and improving the environmental impact of buildings," pp. 8-44, 2015.
- [6] Gianfranco, S. & Serreli, S., & Giovanni and M.B., "Policies and Architectures for the Unthinkable Era: New Resilient Landscapes in Fragile Areas of Sardinia," *Sustainability*, vol. 12(20), pp. 1-30, 2020.
- [7] Fabrègue, B., Portal, L.J., & Cockshaw and C., "Using smart people to build smarter: How smart cities attract and retain highly skilled workers to drive innovation (Belgium, Denmark, the Netherlands, Poland)," *Smart Cities and Regional Development (SCRD) Journal*, vol. 7(1), pp. 9-30, 2023.
- [8] Greis and A.H., *5 Rules for Climate-Resilient Architecture*, 2024.
- [9] Chung and H.M., "Toward Developing a Business Model in the Smart City Initiatives," vol. 1(1), pp. 7-14, 2017.
- [10] Kitchin, R., Lauriault, T. P., a. McArdle and G., "Smart cities and the politics of urban data," *Smart Urbanism – Utopian Vision or False Dawn?*, pp. 48-55, 2016.
- [11] M. Kim, H., Sabri, S., a. Kent and A., "Smart cities as a platform for technological and social innovation in productivity, sustainability, and livability: A conceptual framework," *Smart Cities Technological and Social Innovation, Academic Press ELSEVIER*, pp. 9-25, 2021.
- [12] Carboni and S., "Smart Cities in comparison: An analysis of the best Smart Cities," *Smart Cities and Regional Development (SCRD) Journal*, vol. 8(3), pp. 65-78, 2024.
- [13] Langa, V.G., & Thakhathi and R.D., "The role of smart cities to promote smart governance in municipalities," *Smart Cities and Regional Development (SCRD) Journal*, vol. 6(2), pp. 9-22, 2022.
- [14] M. Kim, H., Sabri, S., a. Kent and A., "Smart cities as a platform for technological and social innovation in productivity, sustainability, and livability: A conceptual framework," *Smart Cities Technological and Social Innovation, Academic Press ELSEVIER*, pp. 9-25, 2021.
- [15] E. Khouli, S., John, V., a. Zeumer and M., "Sustainable Construction Techniques – From structural design to interior fit-out: Assessing and improving the environmental impact of buildings," pp. 8-44, 2015.
- [16] Baker, N. & Steemers and K., "Healthy Homes – Designing with light and air for sustainability and wellbeing," pp. 29-31, 2019.
- [17] Romanelli and M., "Cities rethinking innovation by technology," *Smart Cities and Regional Development (SCRD) Journal*, vol. 3(1), pp. 79-87, 2019.
- [18] Melby and W., *Resilient Design: Why It's Important to Architects*, 2022.

- [19] Radchenko and K., "The economic and social impacts of smart cities: multi-stakeholder pre-study results," *Smart Cities and Regional Development (SCRD) Journal*, vol. 7(2), pp. 25-38, 2023.
- [20] SHEIL, B. B., S. J., J., & SKAVARA and M., "FROM MAKING DIGITAL ARCHITECTURE TO MAKING RESILIENT ARCHITECTURE. In Fabricate 2020: Making Resilient Architecture," p. 12–19, 2020.
- [21] Hegger, M., Fuchs, M., Stark, T., a. Zeumer and M., "Energy Manual – Sustainable Architecture," pp. 190-195, 2008.
- [22] Schmuck and M., ""Unlocking the Potential of German Smart Cities: Strategy Analysis through Online Content Examination," *Smart Cities and Regional Development (SCRD) Journal*, vol. 8(1), pp. 75-104, 2024.