



UDC 712

DESIGN PRINCIPLES AND CONSIDARATIONS OF URBAN LANDSCAPE PLANNING, CASABLANCA AS A CASE STUDY.**Al Echcheikh El Alaoui Douaa***PhD student*

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Abstract. *This comprehensive article explores the intricate principles of sustainable urban landscape planning, with a specific focus on the city of Casablanca. It critically assesses how landscape design and urban development can effectively mitigate ecological concerns. The research utilizes a methodical approach, analyzing a diverse range of publications and conducting an in-depth case study of Casablanca. This includes gathering valuable data from Moroccan administrative and urban planning agencies. The article identifies and elaborates on key sustainable design elements, demonstrating their practical applicability in urban settings. The Casablanca case study serves as a practical example, showcasing both challenges and successes in implementing sustainable landscape practices in a rapidly urbanizing environment. The findings lead to a set of well-grounded recommendations aimed at urban planners and policymakers, emphasizing the need for sustainable, ecologically conscious urban landscapes that prioritize public well-being and environmental health. This study not only contributes to the academic discourse on sustainable urban planning but also provides actionable insights for real-world application.*

Key words. *Sustainable Urban Design, Environmental Sustainability, Casablanca Urban Planning, Green Infrastructure, Urban Landscape Architecture, Ecological Urban Development, Green Urban Spaces.*

Introduction.

Formulation of the Problem. This research aims to analyze the application of sustainable design principles in urban landscape architecture, with a focus on practical integration. The study is critical in bridging the gap between theoretical sustainable design and its implementation in urban landscapes. Incorporating the case study of Casablanca, this research will explore the unique challenges and opportunities presented by this city's landscape. The tasks include a thorough review of sustainable architecture literature, identifying key sustainable design elements for urban landscape settings, developing actionable guidelines for architects, evaluating these guidelines through the lens of Casablanca's urban environment, and proposing policy recommendations to promote sustainable practices in landscape architecture.

Materials and research methods. The research methodology involves a detailed analysis of seminal works by renowned authors in sustainable urban design. These include Alanna Stang and Christopher Hawthorne's "The Green House: New Directions in Sustainable Architecture" (2005), highlighting innovative, sustainable residential architecture; Jan Gehl's "Cities for People" (2010), advocating for pedestrian-friendly urban designs; Douglas Farr's "Sustainable Urbanism: Urban Design With Nature" (2008), which merges urbanism with environmental considerations; William McDonough & Michael Braungart's "Cradle to Cradle:



Remaking the Way We Make Things" (2002), introducing efficient, waste-free design principles; Jane Jacobs' "The Death and Life of Great American Cities" (1961), emphasizing community-based city design; Jeff Speck's "Walkable City: How Downtown Can Save America, One Step at a Time" (2012), discussing making cities more livable; Andres Duany, Jeff Speck, and Mike Lydon's "The Smart Growth Manual" (2009), a guide on smart, sustainable urban planning; Richard Register's "Ecocities: Rebuilding Cities in Balance with Nature" (2006), focusing on ecologically balanced urban development; Randolph Hester's "Design for Ecological Democracy" (2006), which combines ecological science with participatory democracy in urban design; and Charles J. Kibert's "Sustainable Construction: Green Building Design and Delivery" (2008), covering green building processes.

Furthermore, the case study of Casablanca is based on research and information sourced from Moroccan administrations and urban agency of Casablanca (UAC), providing vital insights into the practical application of sustainable urban design in a specific, real-world context. This approach ensures a blend of theoretical knowledge and practical application, crucial for comprehensive understanding and implementation of sustainable urban planning principles.

Main Text.

Sustainable Urban Landscape Planning. The exploration into sustainable urban landscape planning is enriched by seminal works that provide both theoretical frameworks and practical insights. Richard Register's "Ecocities" (2002) is a pioneering work advocating for the reconstruction of cities in harmony with natural systems, emphasizing the role of city form in sustainability and offering visions of ecologically balanced cities [1]. Jeff Speck's "Walkable City" (2012) presents a compelling argument for transforming urban spaces into pedestrian-friendly areas, highlighting the economic, health, and social benefits of walkable cities with examples like Copenhagen and New York [2]. Charles J. Kibert's "Sustainable Construction" (2008) explores green building practices, focusing on sustainable methods in urban construction, including topics like material selection and energy efficiency [3]. Alanna Stang and Christopher Hawthorne's "The Green House" (2005) showcases the fusion of aesthetics and environmental stewardship in modern architecture, featuring examples of environmentally responsible residential buildings [4]. Jan Gehl's "Cities for People" (2010) advocates for pedestrian-centric urban spaces, grounded in years of research and practice, focusing on creating human-centered cities [5]. Douglas Farr's "Sustainable Urbanism" (2008) integrates urban planning with environmental considerations, discussing the creation of functional, sustainable urban spaces, possibly including case studies and design strategies [6]. William McDonough & Michael Braungart's "Cradle to Cradle" (2002) introduces a revolutionary approach to material usage and waste reduction, advocating for designs that emulate nature's regenerative cycle [7]. Jane Jacobs' "The Death and Life of Great American Cities" (1961) critiques mid-20th century urban planning and emphasizes community-centered city design, valuing grassroots involvement [8]. "The Smart Growth Manual" (2009) by Andres Duany, Jeff Speck, and Mike Lydon offers practical guidance on smart, eco-friendly urban planning, combining theoretical insights with practical applications [9].



This comprehensive overview sets the stage for the subsequent section, which will delve into the practical application of these principles through the case study of Casablanca.

Casablanca, a city that epitomizes the challenges and opportunities of sustainable urban landscape planning, provides a compelling case study. The city’s initiatives to integrate sustainable design principles into its urban fabric are a response to pressing environmental challenges, such as the Urban Heat Island effect, and a commitment to enhancing livability and ecological balance.

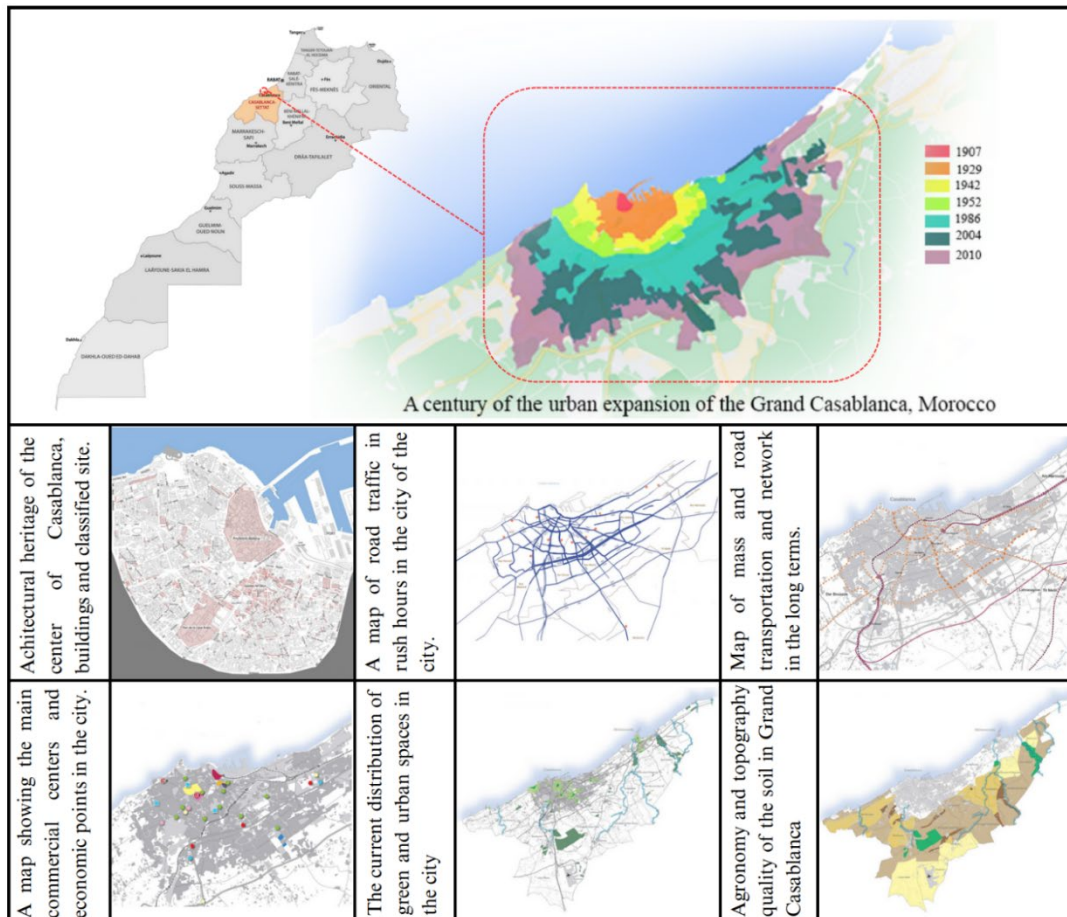


Figure 1: The growth and potential (historical city, traffic map, transportation, commercial centers, green urban spaces and soil quality) of the Grand Casablanca. (Created by the author based on observed documents at the UAC)

Casablanca's growth (Figure. 2), while prioritizing sustainable practices, is explored, especially in areas like the historical city center, commercial zones, and green urban spaces. The city’s development illustrates a thoughtful approach to urban planning, underscoring strategies to maintain a balance between urbanization and environmental sustainability. This includes Urban Megaprojects like the Wessal Casablanca-Port Program and new tramlines, crucial in urban renewal and increasing international competitiveness, yet also highlighting the challenge of balancing modernization with preserving local culture and community needs [10].

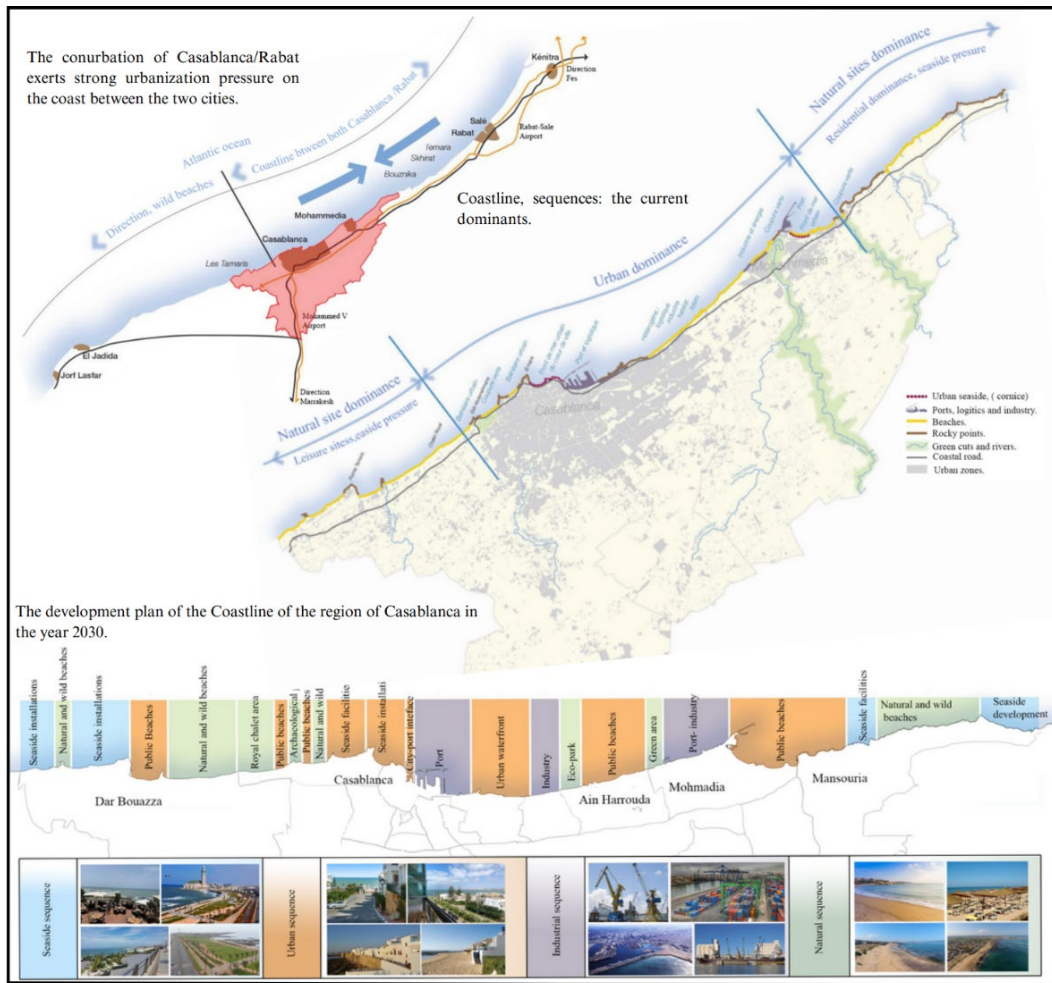


Figure 2: The distribution of urbanization and natural sites of the coastal part of the region of Casablanca and the development plan for 2030
 (Created by the author based on observed documents at the UAC)

The city's ambitious 2030 development plan, particularly along its coastline (Fig.2), is a testament to Casablanca's forward-thinking approach, seeking to harmonize urban expansion with natural site preservation. The balance between rapid urban growth and natural landscape conservation is a key aspect of the city's strategic planning efforts, supported by significant financial backing from the World Bank to make Casablanca more competitive, livable, and attractive for investors, with a focus on sustainable, resilient, and inclusive development [11].

The Green Infrastructure Challenge in the context of Casablanca's urban expansion is also addressed (Fig.3), focusing on the strategic importance of maintaining green belts and other ecological assets. The challenges and strategies in preserving green spaces amidst metropolitan development pressures are examined, including the Urban Environmental Quality study, which developed an Urban Environmental Quality Index (UEQI), indicating the city's efficiency in urban sprawl control and better city planning and management [12].

The case study of Casablanca showcases the city's commitment to sustainable urban development and highlights the complexities involved in integrating these principles into a rapidly urbanizing city's fabric. The study serves as a valuable example for urban centers facing similar sustainability challenges.

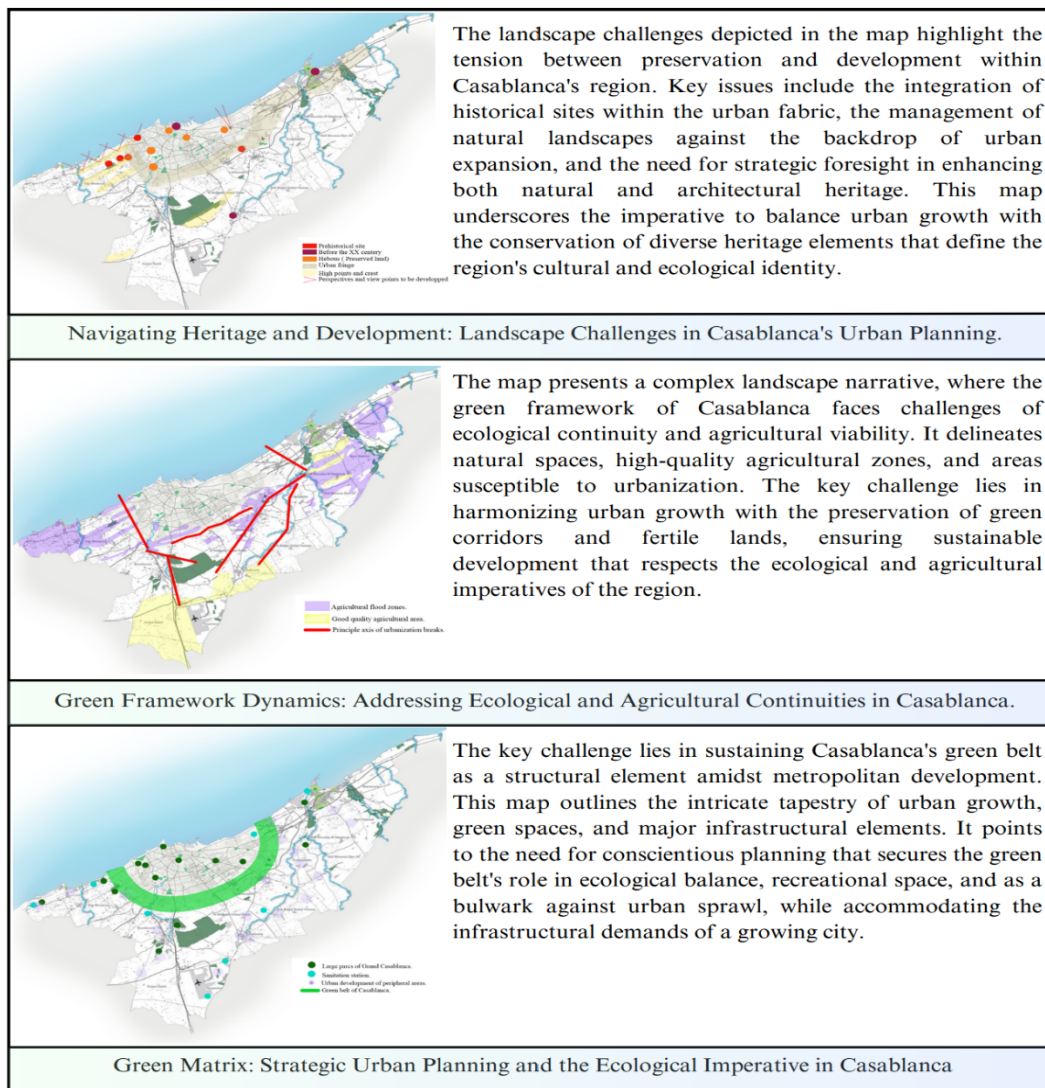


Figure 3: Sustainable Futures: The Green Infrastructure Challenge in Casablanca's Urban Expansion

(Created by the author based on observed documents at the UAC)

Additionally, the study examines the policy framework supporting these sustainable initiatives, including local governance, urban policies, community engagement, and the role of public-private partnerships in financing and managing urban projects.

Despite facing challenges like resource allocation, regulatory constraints, and the need for robust community involvement, Casablanca's innovative solutions, including adaptive management and stakeholder engagement, have been key to successful implementation.

Summary and conclusions.

In concluding this article on sustainable urban landscape planning, the research underscores the criticality of integrating sustainable design principles in urban environments, particularly exemplified by Casablanca. The study bridges theoretical concepts and practical implementation, revealing the dynamic interplay between urban growth and ecological preservation. Future research prospects lie in expanding these principles to diverse urban contexts, examining the scalability of Casablanca's model, and exploring innovative solutions to the unique challenges presented by



different urban environments. This path forward calls for interdisciplinary approaches and collaboration to further enhance sustainable urban landscapes globally.

References

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