

المعهد العربي لإنماء المدن
Arab Urban Development Inst.

60 URBAN GREENING PROJECTS

Arab Cities' Efforts
Towards Sustainability and Resilience
2025

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About the Arab Urban Development Institute (AUDI), a regional, non-governmental, and non-profit organization, established in 1980 by the Permanent Bureau of the Arab Towns Organization, with its headquarters in Riyadh, Saudi Arabia. AUDI is the first Arab institution specializing in urban development and municipal support. It has over 650 member cities across 22 countries and focuses on research and studies in urban policies, capacity development and training, and networking in the fields of urban development and municipal affairs.

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Front cover page: Green extension in King Fahd Road, Riyadh, Saudi Arabia,
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Back cover page: Green and water elements at the National Museum Park, Riyadh, Saudi Arabia,
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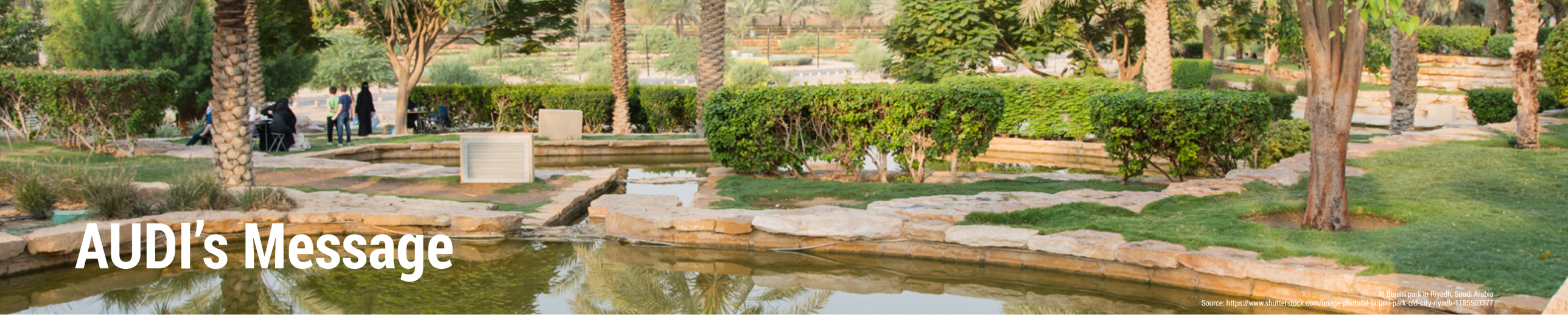

Al Bujairi park in Riyadh, Saudi Arabia
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AUDI's Message



Dr. Anas Mofarreh Almughairy,
AUDI Director General

The Arab Urban Development Institute (AUDI) sincerely thanks the Arab Fund for Economic and Social Development for its ongoing support of the project, "Supporting Green Activities in Selected Arab Cities – Participatory Neighborhood Greening." This report, titled "60 URBAN GREENING PROJECTS,

Arab Cities' Efforts Towards Sustainability and Resilience" is the first in a planned series that the Institute will publish as part of the project's results.

This report comes at a crucial time for cities across the Arab region, where rapid urban sprawl is accelerating in response to growing populations and rising demands for infrastructure, services, and facilities. Unfortunately, this expansion often comes at the cost of green spaces, which serve as vital environmental havens within urban areas. In response to these challenges, a growing number of urban greening initiatives and projects have emerged across Arab cities. These efforts seek to address critical issues in the built environment, including rising temperatures, water scarcity, pollution, the loss of green areas, and the progression of desertification. As cities begin to lose their natural identity, the focus on urban greening is becoming more urgent and central to sustainable urban development.

From this perspective, the report showcases key achievements by highlighting 60 urban greening projects from a diverse range of Arab cities. These projects were thoroughly analyzed to explore the various approaches used to address complex environmental challenges. The report also examines different types of urban greening efforts, ranging from quick interventions—such as the creation of small parks, green pathways, and rooftop gardens—to larger-scale projects aimed at revitalizing neglected spaces for community use. These initiatives reflect a growing awareness within local communities of the importance of integrating urban greening not only at the neighborhood level, but across all scales of urban planning and development.

This analysis has led to the development of a framework that defines the key dimensions of urban greening, advocating for a systematic and sustainable approach grounded in environmental resilience, economic feasibility, and active community involvement. The report underscores that green initiatives should not exist in isolation from urban development; instead, they must be embedded within their core principles. Every investment in green infrastructure is also an investment in public health, climate resilience, and inclusive economic growth. The report highlights the critical role of engaging a wide range of stakeholders—including local governments, civil society organizations, private sector developers, and residents—in the urban greening process. It stresses the value of meaningful, long-term collaboration through activities such as participatory design workshops and public-private partnerships, emphasizing that inclusive engagement is crucial for achieving a lasting impact.

Furthermore, the report emphasizes the need to develop governance models and strategies that promote inclusive participation in the urban greening process, especially as some Arab cities are still in the early stages of adopting such initiatives. It also explores leading urban greening experiences in other Arab cities that have taken proactive steps toward realizing their visions for an environmentally sustainable urban future. These examples serve as valuable references and sources of inspiration for cities seeking to advance their own greening efforts.

In summary, urban greening is not a passing trend, but it serves as the lifeline of urban areas and a driving force for achieving sustainable and high-quality living. It plays a vital role in creating healthier, more resilient cities. Ensuring its success requires the collective efforts of decision-makers, practitioners, and citizens, working together to build more livable environments and strengthen resilience to the impacts of climate change.



A view inside the Arab League Park, Casablanca, Morocco, source: https://rb.gy/pvzjhw

EXECUTIVE SUMMARY

As global temperatures rise and climate-related hazards such as extreme heat and flooding intensify, urban areas are increasingly vulnerable. These challenges have prompted the global community to embrace sustainable urban development practices, with urban greening becoming a key strategy to mitigate climate change and enhance resilience. In alignment with the United Nations' Sustainable Development Goals (SDGs), urban greening initiatives aim to promote environmental sustainability, improve quality of life, and reduce carbon footprints.

Cultural, socio-political, and economic factors uniquely shape urban greening priorities in the Arab world. Challenges such as water scarcity influence the adoption of innovative irrigation and drought-resistant planting techniques. Desertification drives afforestation efforts and the establishment of green belts to combat land degradation. Rapid urbanization and urban sprawl necessitate integrated planning to balance urban growth with sustainable development. These contextual factors underscore the importance of tailoring greening initiatives to local realities while addressing broader environmental and socio-economic goals. Driven by the urgent need to address these critical challenges faced by cities, this report explores the growing importance of urban greening initiatives in the Arab region, providing insights into their implementation, effectiveness, and potential for scaling up in response to these pressing issues.

The aim of this report is to provide a comprehensive framework for sustainable urban greening initiatives that can be adapted to the specific needs and contexts of cities across the Arab region. This framework advocates for urban greening initiatives, grounded in both global climate change concerns and pressing local urban issues such as rapid urbanization and environmental degradation. The framework aspires to guide municipalities in effectively implementing urban greening solutions that contribute to climate resilience, enhanced urban livability, and long-term environmental sustainability.

The report adopts a case study approach and examines 60 urban greening projects that were previously selected from a larger pool of initiatives in the Arab region. These projects, available on the Arab Urban Development Portal—a regional platform developed by the Arab Urban Development Institute—serve as a representative sample for identifying regional trends in urban greening. The data analysis follows a two-stage approach. First, 60 urban greening projects are categorized using a typology developed from existing literature. The second stage maps key dimensions to examine projects' contribution to urban sustainability and resilience in addressing regional challenges. This analysis combines insights from the literature and project data to capture trends and practices in the Arab region.

The analysis highlights that 65% of the projects incorporate multiple stakeholder involvement, including public-private partnerships and collaborations with NGOs, international organizations, and local communities. Around 47% of the initiatives explicitly integrate economic development objectives, while 53% focus primarily on environmental sustainability and social inclusivity. Community engagement is a central feature in over 70% of the analyzed projects, demonstrated through participatory tree planting, rooftop gardening, and capacity-building workshops. Additionally, 30% of the projects target marginalized groups, offering training and economic empowerment opportunities, particularly for women and youth, fostering ownership and resilience among residents.

Adopting advanced technologies is a defining feature of many projects. It is evident in 40% of the projects, with innovative solutions such as automated irrigation systems, renewable energy integration, and ecosystem-based approaches enhancing sustainability outcomes. Planting campaigns and green infrastructure are prevalent in city-wide projects, accounting for 60% of the initiatives at this scale. Food production components are prominent in medium and large-scale projects, reflecting an increasing emphasis on urban farming and food security.

Economic opportunities are also prominent as evident in 50% of the analyzed projects that address economic development goals in their core objectives, with greening initiatives contributing to job creation, tourism promotion, and local business development. Moreover, projects are seen to be increasingly inclusive, providing benefits for diverse community groups and emphasizing the participation and empowerment of marginalized populations.

The proposed framework for urban greening in Arab cities addresses the region's unique socio-economic, environmental, and governance challenges while aligning with global sustainability goals. It synthesizes insights from the analysis of 60 projects and existing literature, offering a structured approach to designing inclusive and sustainable urban greening initiatives. The framework emphasizes three interrelated dimensions: Governance, Public Engagement, and Inclusivity; Environmental Sustainability and Resilience; and Economic Development. It guides cities in balancing environmental, social, and economic benefits while adapting best practices to local contexts and addressing region-specific challenges.

It is to be noted, however, that the report does not aim to assess the effective impacts of these projects as this would require long-term observation and a different, more resource-intensive methodology. Nevertheless, certain risks and challenges are expected. As many of these projects are still under implementation, at least some might face challenges related to sustaining necessary funding and long-term commitment to their needed maintenance in the context of increased economic difficulties that many Arab countries are facing. Also, in the case of some projects, there is a need to ensure that greening in marginalized neighborhoods does not substitute more substantial public interventions to address more profound socio-economic and environmental challenges.

While challenges remain, the momentum behind urban greening provides a unique opportunity to enhance the quality of urban life and promote a more sustainable future for Arab cities. In the context of enhancing urban greening initiatives in the Arab region, key recommendations focus on strengthening institutional capacity, promoting effective governance, advancing environmental sustainability, and fostering economic opportunities. Institutions should invest in training and create collaborative platforms to support urban greening projects. At the governance level, empowering local authorities, encouraging community engagement, and implementing supportive policies are essential. Environmentally, there should be a focus on investing in green infrastructure and promoting sustainable land use practices. Economically, the development of green entrepreneurship and public-private partnerships is crucial for ensuring the long-term success and scalability of urban greening efforts.



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INTRODUCTION

A view showing Nizwa palm grove, Oman,
source: https://www.istockphoto.com/photo/view-on-nizwa-palm-grove-oman-gm1218545862-356102958.

Context and Objective

Urban greening in Arab cities has evolved significantly over the past decades, shaped by a combination of historical, cultural, and socio-economic factors. Traditionally, green spaces in the region were limited to small-scale gardens and oasis-like areas, often linked to private courtyards or religious institutions, reflecting the region's arid climate and water scarcity (Kafafy, 2010). The rise of modern urban planning in the mid-20th century introduced a more structured approach to urban greening, with city parks and tree-lined streets becoming symbols of modernization (Al-Hathloul, 2017). However, urban expansion, desertification, and population growth have since posed challenges to maintaining and expanding green infrastructure (Pahl-Weber, et al., 2013). In recent years, urban greening has gained prominence as part of broader sustainability agendas, driven by growing recognition of its role in combating environmental issues like heat islands and air pollution, enhancing urban resilience, and fostering social inclusivity (Al-Zu'bi & Mansour, 2017). Current initiatives align with this historical trajectory by emphasizing multifunctional green spaces that serve environmental, social, and economic purposes (Makhloufi, 2022).

Urban greening has emerged as a vital aspect of sustainable urban development, particularly in rapidly growing and climate-vulnerable regions such as the Arab world. This report aims to identify and analyze trends, diverse strategies, and innovative approaches to developing and implementing urban green spaces across Arab cities. Drawing upon a diverse sample of 60 identified urban greening projects, this study provides a transversal analysis of these initiatives from the angle of urban sustainability and resilience.

The projects showcased in this report represent a wide range of efforts to incorporate green spaces into urban environments, from expansive urban public parks to smaller, community-driven initiatives such as rooftop gardens. Through this analysis, the report underscores various green approaches and explores their role in improving urban resilience, mitigating environmental risks, and enhancing residents' quality of life (Meerow & Newell, 2017).

This report is part of a broader research series dedicated to exploring the intersection of sustainability and urban development in Arab cities. While the focus here is on urban greening, future reports will address other critical aspects of urban sustainability, such as urban mobility, solid waste management, etc. Together, these reports aim to shed light on how cities in the Arab world are tackling the interconnected challenges of climate change, urbanization, and social equity.

Main Goal and Objectives of the Report

The main goal of this report is to contribute to a deeper understanding of how greening initiatives in the Arab region are shaping urban landscapes, enhancing community engagement, and addressing region-specific challenges such as water scarcity, desertification, and rapid urbanization. By identifying key trends, challenges, and innovations, the report aims to offer insights into how these projects align with broader urban sustainability agendas. The primary outcome of this report is to provide a framework as a guideline for producing better urban greening initiatives in Arab cities while addressing context-specific challenges. This framework is grounded in a comprehensive review of the relevant literature, followed by an in-depth analysis of various urban greening initiatives in the Arab region. The report provides a comprehensive analysis of urban greening projects in Arab cities, examining their governance frameworks, environmental and resilience impacts, and contributions to economic development.

Objectives of the Report

1. **Analyze Urban Greening Projects in Arab Cities:** Identify and study 60 urban greening projects across the Arab region, and examine their types, scales, and geographic distribution.
2. **Highlight Trends and Diversity in Urban Greening:** Explore the various approaches, objectives, and components of urban greening initiatives, including community gardens, urban parks, rooftop greening, and green infrastructure.
3. **Promote Knowledge Sharing and Best Practices:** Offer insights and lessons learned from diverse projects to inform stakeholders and encourage replication of potential initiatives in other urban contexts.
4. **Identify Potential Contributions to Urban Sustainability and Resilience:** Investigate how these projects, in their objectives and main components, contribute to improving urban sustainability, environmental resilience, and the overall quality of life in Arab cities.
5. **Understand the Role of Governance and Community Engagement:** explore governance structures, stakeholder collaboration, and the degree of community involvement in planning and managing urban greening initiatives.

Moreover, the report examines how urban greening projects tackle specific challenges in the Arab world, such as water scarcity, desertification, rapid urbanization, and extreme temperatures. It also serves as a foundational study for future reports in a broader series focused on urban sustainability in Arab cities, addressing aspects like mobility, waste management, and social equity.

The following discussion provides an overview of urban green spaces within cities, examining their various typologies and characteristics. It explores how different forms of urban greening contribute to environmental sustainability, social well-being, and economic development.

Urban Green Spaces within Cities

Urban green spaces refer to planted areas within urban settings that provide environmental, social, and economic benefits (Chiesura, 2004). These spaces can range from expansive public parks to smaller interventions like rooftop gardens or vertical green walls (Jim & Chen, 2006). Urban green spaces play a critical role in enhancing urban ecosystems by reducing pollution, mitigating temperature extremes, and fostering opportunities for recreation and social interaction (Beatley, 2011; Chiesura, 2004). The multifunctional nature of urban green spaces positions them as essential urban infrastructure, providing benefits that extend far beyond aesthetics. They contribute to climate adaptation, improve public health, and promote social inclusion. Urban greening projects are sometimes part of larger strategic plans, encompassing interventions across multiple cities or neighborhoods (Derdouri, et al., 2025).

Academic literature on urban greening initiatives has extensively explored diverse approaches and typologies that enhance urban ecosystems and social well-being. Below, the most prominent categories of urban greening identified in the literature, reflect a diversity of objectives and approaches.

Table 1.1: The different types of urban greening activities found in the literature

Types of urban greening activities	Brief description
Green Infrastructure Development and Management	Green infrastructure refers to networks of natural and semi-natural features that encompass a wide diversity of green spaces within cities. Hence, green infrastructure focuses less on specific spaces and more on the effort to connect them, and leveraging their collective potential to address urban environmental challenges on a broader scale (Benedict & McMahon, 2006; Hansen & Pauleit, 2014). Scholars highlight its multifunctionality and potential to enhance urban permeability while providing critical ecosystem services such as air purification and urban heat mitigation. This category includes interventions incorporating green spaces as part of broader urban planning strategies, often serving multiple purposes such as stormwater management, climate regulation, and strengthening urban resilience (Meerow & Newell, 2017).
Afforestation Initiatives	Afforestation is not strictly a type of green space but a widely practiced urban greening strategy implemented in many cities. The main focus of afforestation is to improve urban landscapes by increasing green coverage. It is recognized as a vital strategy for mitigating climate change, enhancing biodiversity, and improving urban air quality (Aronson et al., 2017). These projects also focus on restoring degraded areas or creating green buffers to combat urban sprawl and reduce the urban heat island effect (Churkina et al., 2020). Furthermore, afforestation promotes recreation and strengthens residents' connection with nature (Nowak & Dwyer, 2007).
Suburban Agriculture	Suburban agriculture refers to agricultural practices on the periphery of urban areas, integrating food production within the urban-rural interface. It supports local food systems, reduces transportation emissions, and preserves green belts (Mougeot, 2000; Morgan, 2009; Anguelovski et al., 2020). Beyond food production and the improvement of food security for urban populations, these areas may also host recreational and tourism activities, enhancing urban sustainability.
Urban Forests	Urban forests consist of dense tree cover within or near cities, designed to mitigate urban heat islands, improve air quality, and combat climate change. They support biodiversity, offer recreational spaces, and contribute to carbon sequestration and flood management. Urban planning literature highlights their critical role in sustainable city planning (Konijnendijk et al., 2005; Roy et al., 2012).
Urban Parks' Development and Management	Urban parks are traditional green spaces that provide recreation, aesthetic value, and ecological benefits. Often serving as cultural hubs, they accommodate diverse community groups, promote inclusivity and improve mental and physical well-being. Research underlines their contributions to urban sustainability and the enhancement of urban biodiversity (Chiesura, 2004; Wolch et al., 2014).
Greening Polluted Locations	Greening polluted locations focuses on restoring contaminated or degraded urban sites through afforestation, phytoremediation, or other ecological interventions. The research underscores its significance in reversing environmental degradation and reclaiming urban land for public use (Pilon-Smits, 2005; Loures et al., 2015).
Urban Farming	Urban farming integrates food production into urban environments, ranging from small-scale backyard farms to larger-scale rooftop or community-based initiatives. It plays a vital role in promoting food security and local economic development while reducing the environmental footprint of food systems (Ackerman et al., 2014; Specht et al., 2014).
Neighborhood Gardens' Development and Management	Similar to community gardens but often smaller in scale, neighborhood gardens are localized green spaces within specific residential areas. They provide opportunities for residents to engage in gardening and create shared green spaces that strengthen neighborhood bonds. Studies identify their role in enhancing urban aesthetics and promoting localized food systems (Zhou & Kim, 2013; Milligan et al., 2004).
Tactical Interventions	Tactical interventions, such as temporary pop-up parks, street closures for greenery, or parklets, provide short-term solutions to enhance urban green spaces. These initiatives often test ideas for longer-term greening strategies while engaging local communities (Sasser, 2017; Hou, 2010).
Community Gardening	Community gardens are small-scale, participatory spaces where residents collaboratively grow plants, vegetables, or flowers. These spaces not only enhance the aesthetic value of neighborhoods but also promote social interaction, and provide access to fresh produce, fostering food security and environmental education. Studies highlight their role in building community resilience and fostering civic engagement (Drake & Lawson, 2015; Kingsley et al., 2019).
Rooftops and Facades Greening	Green rooftops and vertical gardens are innovative solutions for high-density urban areas with limited space. These solutions contribute to urban cooling, improved air quality, and increased energy efficiency for buildings. Research shows their potential for mitigating urban heat islands and enhancing urban aesthetics (Oberndorfer et al., 2007; Perini & Rosasco, 2013).

The report focuses on different types of urban greening projects, highlighting their distinct features and the strategies employed to address environmental, social, and economic challenges in urban settings. The diverse types of urban greening collectively contribute to addressing urban heat, improving air quality, increasing biodiversity, and enhancing residents' well-being (Beatley, 2011). Specifically, green infrastructure often emphasizes ecological restoration and climate resilience, while urban forests may include multifunctional landscapes that incorporate both ecological and recreational aspects (Kabisch et al., 2017). On the other hand, urban parks and community gardens prioritize accessible recreational spaces, fostering social inclusion and community well-being (Haase et al., 2017).

Urban Greening Across Arab Cities

As cities in the Arab world face growing challenges related to population growth, climate change, and environmental degradation, urban green spaces have become a cornerstone of sustainable urban planning (UN-HABITAT, 2023). Urban greening not only addresses environmental concerns such as air pollution, urban heat islands, and biodiversity loss, but also contributes to social cohesion, public health, and economic vitality (Beatley, 2011; Kabisch et al., 2017). Urban greening projects in the Arab world are particularly relevant due to the region's unique environmental and socio-political challenges, including water scarcity, extreme temperatures, and rapid urbanization. By integrating green infrastructure, cities can become more resilient to the impacts of climate change while promoting environmental sustainability (Derdouri, et al., 2025; Kabisch et al., 2017). This report explores the significance of urban green spaces in addressing these challenges and presents a transversal analysis of projects that have been implemented or are ongoing across various cities in the Arab world.

The Scope of the Study: 60 Urban Greening Projects in the Arab Region

The report focuses on analyzing 60 urban greening projects in the Arab region. These projects were previously selected from a larger pool of initiatives in the Arab region and are available on the Arab Urban Development Portal, a regional platform developed by the Arab Urban Development Institute that provides information on urban development initiatives across the Arab world. Moreover, the selection was guided by several key criteria to ensure a comprehensive sample. First, the projects were chosen to cover all Arab countries, reflecting the regional diversity and showcasing various approaches to urban greening across different contexts. Second, the availability of reliable data played a critical role in the selection process. Projects were included based on the accessibility of detailed information, ensuring that the analysis could draw on robust and accurate insights. Third, an effort was made to include a variety of urban greening projects, ranging from small-scale interventions like rooftop farming to large-scale initiatives such as city-wide afforestation and coastal redevelopment. This diversity was intentional, providing a rich understanding of greening practices in the Arab world and illustrating the range of objectives, stakeholders, and impacts associated with these initiatives. Fourth, the number of projects per country was determined by considering the demographic size of each country and its overall dynamism in terms of urban development projects and initiatives. The 60 projects provide a comprehensive sample and basis for identifying key trends, challenges, and innovations in urban greening initiatives. By focusing on this sample, the report offers a structured analysis that reflects the evolving priorities and strategies shaping urban greening development in Arab cities.

Methodology

This report adopts a case study approach to examine the 60 urban greening projects across Arab cities. The purpose of this approach is to provide an informed and structured overview of various project types, processes, and outcomes. The overview also captures the ambitions of these projects and their attempts to enhance urban resilience, community engagement, and sustainable economic development across the Arab region.

Data Collection

The data for this report is mainly based on the descriptions of projects published on the Arab Urban Development Portal. The portal aggregates both qualitative and quantitative data from project reports, government publications, and media articles. This triangulation approach allowed for cross-validation of information, ensuring that the reported findings were comprehensive and grounded in multiple perspectives. The projects' description on the Portal provides information on project objectives, governance structures, funding sources, timelines, and community impact assessments. The tone is descriptive and factual, and references are provided for featured information.

Triangulation of information, which involves consulting multiple data sources such as government reports and local media, helps ensure reliability and reduce potential biases in the initial reporting (Bowen, 2009). Although not all projects have full datasets, the comprehensive and systematic nature of the data on the Portal provides sufficient information for a transversal analysis.

Data Analysis

In the data analysis phase, the report follows a two-stage approach. The first phase involves categorizing the 60 urban greening projects using the typology of urban greening initiatives

(see Table 1.1), which was developed based on a review of existing literature. Urban greening projects were also categorized according to their scale of intervention, which is a critical criterion in analyzing the 60 projects to ensure the sample reflects a diverse range of impacts and geographical reach. Besides, a categorization of project's components was developed to explore the activities involved and their contribution to sustainability and resilience. These categorizations provided a foundation for understanding the diversity of projects across different urban contexts. The second phase focuses on mapping key dimensions, including environmental and economic impact, technical and managerial solutions, and institutional and governance structures that were used as analytical lenses to transversally examine the projects. These dimensions were extracted from a comprehensive review of key concepts in urban greening initiatives from the literature and were further refined through the analysis of projects' data, ensuring that they capture region-specific trends and practices. This phase evaluates how the urban greening initiatives contribute to sustainability and resilience, through a cross-examination with projects' objectives, types, scales and components. The key concepts of urban greening initiatives and their role in enhancing sustainability and resilience in cities are discussed further below.

Key Concepts of Sustainable Urban Greening Initiatives

The success and long-term impact of urban greening initiatives are influenced by key factors. Governance, public engagement, and inclusivity have been widely recognized as essential for effective project implementation, ensuring that diverse stakeholders, including public authorities, private actors, and local communities, contribute to and benefit from urban greening efforts (Anguelovski et al., 2020). Environmental sustainability and resilience are core considerations in urban greening, particularly in the Arab region, where challenges such as water scarcity, desertification, and climate change necessitate nature-based solutions and sustainable land-use planning (Kabisch et al., 2017). Economic development was identified as a critical dimension due to the increasing role of green projects in generating employment, attracting investment, and supporting local economies through eco-tourism, urban agriculture, and commercial components (Wolch et al., 2014). By structuring the analysis around these dimensions, this report provides a comprehensive framework for understanding the multifaceted contributions of urban greening to sustainable urban development.

Governance frameworks assesses the involvement of stakeholders, including government bodies, private sector entities, and community members. Governance, public engagement, and inclusivity are essential as they reveal the relational networks and partnerships necessary for project development, implementation, and potential long-term sustainability (Evans et al., 2015). A key factor within this dimension is the degree of community involvement in decision-making processes or even in the ongoing management of projects, which fosters a sense of ownership and ensures that projects align with local needs and values (Quick & Bryson, 2016). Projects that engage communities directly in planning and decision-making are more likely to achieve lasting impact, as they leverage local knowledge and encourage stewardship of green spaces (Elmqvist et al., 2018). This dimension also examines the role of public-private partnerships and local governance models in enhancing project accountability and inclusiveness, which are crucial for building resilient urban spaces (Elmqvist et al., 2018). Moreover, Research highlights that inclusive greening initiatives help bridge social and economic disparities by ensuring that all community members—regardless of age, gender, or socio-economic status—benefit from green spaces (Anguelovski et al., 2018). Participatory approaches in urban greening can empower marginalized groups, fostering a sense of ownership and responsibility while enhancing social cohesion and resilience within communities (Wolch et al., 2014).

The environmental aspect focuses on the specific methodologies and technologies used in the projects to foster environmental sustainability. High-tech and nature-based solutions play a pivotal role, with projects incorporating advanced technologies, such as hydroponic systems or smart irrigation, alongside ecosystem-based approaches to enhance urban resilience (Kabisch et al., 2017). Greening and planting initiatives, ranging from afforestation to urban farming, serve as fundamental components of these projects, contributing directly to carbon sequestration, biodiversity, and improved urban microclimates. The integration of renewable energy systems and sustainable waste management practices further strengthens the environmental impact of these initiatives (Kabisch et al., 2017). A key element within this dimension is the emphasis on capacity development through technical training, workshops, and awareness campaigns. These initiatives empower local communities and administrations by equipping them with the skills necessary for maintaining and expanding green spaces over time (Alberti et al., 2017). Community-led training sessions and public awareness programs foster a culture of environmental stewardship, ensuring long-term sustainability. Connectivity and accessibility are also central to the success of these projects, as they integrate green spaces with urban transportation networks and surrounding neighborhoods. Projects that enhance walkability, improve public transportation links, and provide multiple access points for diverse populations ensure that urban green spaces are equitably available to all residents. By analyzing these diverse aspects, this report highlights both current practices and planned strategies that aim to foster broader environmental sustainability in the region, ensuring that urban greening efforts are embedded within holistic urban development frameworks (Wamsler et al., 2016).

Another critical aspect is the economic impact of urban greening projects, such as livelihoods and job creation, business development, increased property values, and long-term economic resilience. Key elements within this dimension include contributions to food security and local food production, which strengthen community resilience and reduce reliance on imported resources (Beatley, 2011). Projects that focus on urban agriculture and food production can stimulate local market development and provide fresh produce, supporting both economic growth and community health. Business development, livelihood opportunities, and the promotion of eco-tourism and agro-tourism initiatives further enhance local economies, turning green spaces into economic assets (Gómez-Baggethun & Barton, 2013). These initiatives encourage tourism practices, generate revenue, and contribute to job creation, thereby linking environmental sustainability directly to economic benefits and quality-of-life improvements for local communities. This analysis is significant because it links urban sustainability to tangible economic benefits, making a case for investment in green initiatives as a means to support economic growth (Beatley, 2011). Economic development metrics in this context may include both direct economic outcomes and indirect economic contributions, such as increased tourism or reduced health costs due to improved air quality (Gómez-Baggethun & Barton, 2013).

Limitations

In conducting this analysis, several limitations were encountered, primarily concerning data availability, consistency, and, in some cases, potential biases in the information provided. Data gaps were noted in the Arab Urban Development Portal, with some projects missing critical information such as funding sources, economic development metrics, or community engagement feedback, which are essential for a comprehensive and transversal analysis. The availability of data varied across projects presenting challenges for cross-comparison, particularly when data was inconsistent across cities or regions. However, the analysis approach employed here aims to provide as balanced and accurate review as possible of the project's objectives, components and implementation. Moreover, the methodology, based on secondary data analysis, does not allow for a fine-tuned analysis of the effective – and sometimes unintended – impacts of the projects after their implementation. Nevertheless, the analysis compensates for the loss of potential insights that would come from a more in-depth study of individual projects by leveraging the richness of the information and lessons learned that emerge from the wide geography and diverse categories covered in this report.

It is worth noting that 50% of these 60 urban greening projects have not yet been completely implemented and some are still in their early implementation phases. However, the selected sample remains relevant and valuable for analysis. The purpose of this study is not to assess project outcomes but rather to identify trends, anticipate best practices, and examine the governance, environmental, and economic dimensions shaping urban greening initiatives in the Arab region. By analyzing project objectives, components, implementation strategies, and stakeholder involvement, the report provides insights into emerging practices and potential pathways for improving urban sustainability, regardless of project completion status.

Structure of the Report

The report is structured as follows:

- **Introduction:** Outlining the context, focus, and methodology of the study.
- **Transversal analysis:** A detailed cross-examination of the 60 urban greening projects. Within this chapter, highlights of selected projects are provided in the form of boxes to showcase different approaches to urban greening and support the overall narrative. At the end of this chapter, a framework for sustainable urban greening initiatives is proposed.
- **Projects summaries:** In this section, one-page cards systematically present information on each project, including its name, location, period of development and implementation, objectives, components, and key findings on the three dimensions of governance, public engagement and inclusivity, environmental sustainability and resilience and economic development.
- **Conclusions:** Synthesizing the key findings on urban greening initiatives in the Arab world and highlighting some recommendations for integrated urban greening initiatives.

TRANSVERSAL ANALYSIS OF URBAN GREENING PROJECTS IN ARAB CITIES

Landscape design welcoming people in the Diriyah Park, Saudi Arabia, source: https://www.istockphoto.com/photo/a-fragment-of-the-diriyah-park-landscape-design-riyadh-gm1006374412-271617755.

A. Introduction

This chapter presents a transversal analysis of the 60 urban greening projects across various Arab cities. The analysis aims to uncover key patterns, relationships, and insights within the data to better understand the diverse approaches taken by these projects in addressing critical dimensions of sustainable urban development. This chapter is organized into four main sections: the typology of the selected 60 urban greening projects, a general overview of the projects' components followed by an in-depth thematic exploration and a proposed framework for sustainable urban greening initiatives. Visual aids such as maps, charts, and case examples accompany each section to illustrate findings and emphasize specific trends within the dataset.

B. The Typology of the Selected 60 Urban Greening Projects

The typology of urban greening projects identified in the literature provides a comprehensive categorization for understanding the diverse forms of greening initiatives. Some of these types were noted in the 60 analyzed projects (i.e., urban parks, rooftops, urban farming, urban forests, green infrastructure, greening polluted locations and afforestation initiatives), while others were not represented (i.e., tactical interventions, community gardens, neighborhood gardens, and suburban agriculture). It is essential to note that many projects incorporate multiple types of greening, blending their objectives to achieve broader environmental, social, and economic benefits. For example, multifunctional urban parks that combine aesthetic, recreational, and ecological functions may serve, in some cases, as neighborhood gardens or include urban forest components. The analysis has also revealed overlaps and additional categories that expand beyond the aforementioned typologies. These categories often integrate several greening types and include:

- **Urban (re)development projects:** Broader urban projects where greening is not the primary focus but is integrated as a significant component. These projects aim for a balance between urban growth and ecological enhancement or preservation of existing forests. Projects in this category also focus on revitalizing underutilized or degraded urban areas, incorporating green elements to improve environmental quality and community well-being.
- **Green belt initiatives:** This category combines afforestation, suburban agriculture, and green infrastructure strategies to create continuous green corridors. Green belts aim to improve connectivity, resilience, and ecological balance on a broader scale.

The diversity of these projects, as shown in Fig. 2.1, reflects the various objectives and local contexts that shape urban greening efforts, from addressing environmental degradation to fostering community engagement. This expanded categorization provides a more inclusive framework that captures the diversity and complexity of urban greening initiatives in the Arab region. By acknowledging overlaps and adding context-specific categories, we ensure a richer understanding of the types of initiatives shaping urban environments today.

The scale of a project is often dictated by its type and specific objectives as shown in Fig. 2.2. For instance, afforestation initiatives in Tunisia and Bahrain were classified as medium-scale, as they target specific zones or cover particular areas within their respective cities. In contrast, the afforestation project in Djibouti, which aims at the beautification and greening of the entire city, is categorized as city-wide due to its broader geographical scope and city-wide objectives. Hence, the projects in the sample are distributed geographically to cover multiple Arab cities as shown in Fig. 2.3. and are categorized into the following scales:

- **Small-scale:** often involving localized interventions such as small urban parks or rooftop farming initiatives. Small-scale projects are typically pilot projects or specific interventions addressing niche challenges, such as urban rooftop gardens or small-scale community green spaces. While these projects can be highly effective in localized contexts, they are generally less common compared to medium, large, or city-wide initiatives

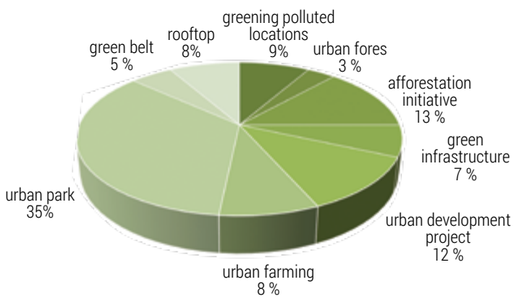

Fig. 2.1: Types of greening projects in the selected sample, 2024

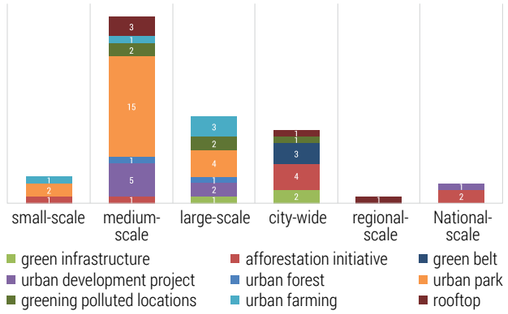

Fig. 2.2: Scale and types of projects in the selected sample, 2024



Fig. 2.3: The geographical distribution of the 60 urban greening projects, 2024

- **Medium-scale:** These projects are mostly neighborhood-scale and often aim to address specific urban challenges within particular neighborhoods or targeted areas. They typically focus on improving local environmental quality, enhancing public spaces, and promoting community engagement.
- **Large-scale:** typically involving significant infrastructure or greening of major urban zones, large-scale projects tend to address broader urban issues, such as air quality, water management, or large-scale afforestation. These projects often involve multiple stakeholders, including local governments, private entities, and international organizations, and require substantial funding and coordination.
- **City-wide:** these projects cover the entire urban area, such as afforestation campaigns. They aim to address sustainability goals across different urban centers. City-wide projects are particularly ambitious and aim to transform the sustainability framework of an entire urban area. The aim is often to achieve systemic, large-scale environmental change that will impact both the urban ecosystem and the quality of life for its residents.
- **National:** Initiatives extending across multiple cities or regions within a single country, reflecting large-scale governmental or organizational efforts. They often serve as frameworks or pilot programs intended for broader application, ensuring uniform progress in greening efforts across urban and rural areas. For example, national afforestation campaigns or urban redevelopment plans are designed with scalability in mind, enabling replication across cities to achieve cohesive national objectives.
- **Regional:** Projects spanning multiple countries, addressing shared environmental challenges, or fostering cross-border collaboration. This scale of projects is mainly seen in initiatives led by international organizations aiming to replicate a project in different countries sharing similar contexts and challenges of local communities. An example is the Great Green Wall project, which involves a large number of African countries seeking to limit the advance of the Sahara Desert.

The selected projects are not necessarily statistically representative of urban greening projects in the Arab region, as there is no existing comprehensive database to rely on for this selection. However, the sample is expressive of the diversity of situations, capturing a wide array of projects across Arab countries and showcasing the multifaceted nature of urban greening efforts in the region. The geographic distribution of the selected urban greening initiatives, illustrated in the map in Fig. 2.3 above, generally reflects the population distribution but also the dynamic investment of certain governments and cities in urban development projects on one side and availability of information on the other.

Some North African and Gulf countries show a relatively high concentration of greening projects, reflecting strong national or municipal support for greening initiatives in the last two decades. In contrast, other countries in the Levant and Africa have fewer projects, which may be due to varying economic constraints and political contexts.

C. General Overview of Urban Greening Projects' Components in Arab cities

Almost all urban greening projects in the sample include mixed-use facilities that combine various functions to support the community and enhance urban life. Thirty-nine projects feature diverse leisure amenities such as sports areas, art installations, playgrounds for children, workshops, training centers, educational facilities, etc. Cultural and educational components are predominantly found in urban development projects and some large-scale urban parks, particularly those targeting tourist attractions. In 28 projects, these features are combined with commercial activities such as local markets, restaurants, coffee shops, and selling kiosks, along with landscaping features. By integrating leisure and commercial activities, these projects foster social interaction, enhance cultural features and economic opportunities, contributing to the overall vitality of urban spaces. Such activities are particularly prevalent in medium and large-scale projects, including urban parks, urban development projects, and greening polluted locations, which create an inviting environment for visitors and residents, as illustrated in Figures 2.4 and 2.5.

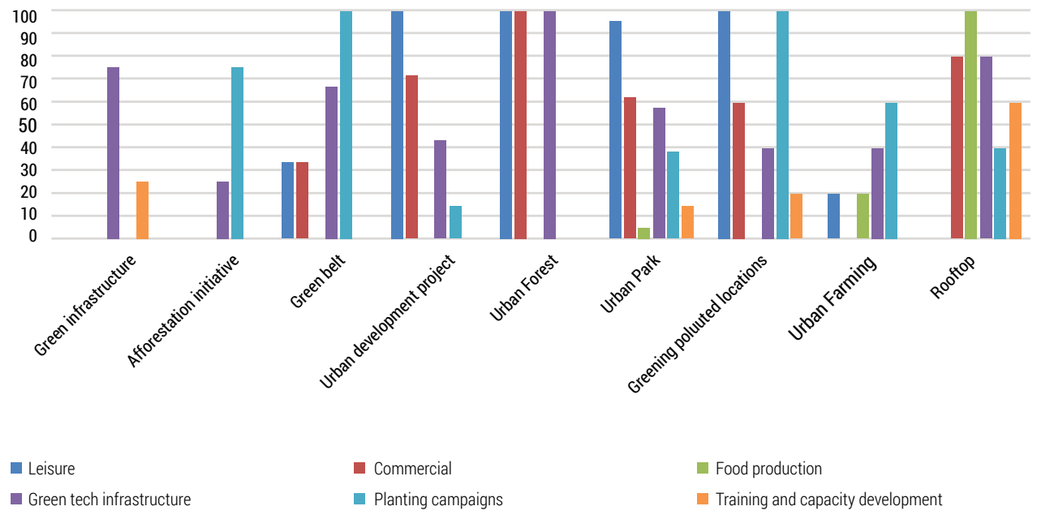

Fig. 2.4: Percentages of activities undertaken in different types of greening projects, 2024

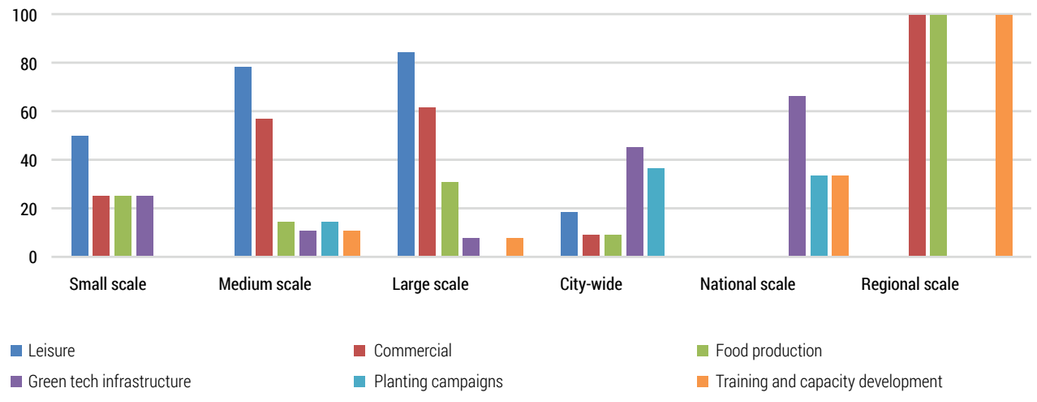

Fig. 2.5: Percentages of activities undertaken on different projects' scales, 2024

Planting and agricultural activities, along with public awareness campaigns and training sessions, are commonly associated with afforestation initiatives, and urban green belt projects, that rely heavily on public engagement to achieve their goals. For example, the Million Oaks Afforestation project in Erbil, Iraq, aims to plant one million trees across 65 football fields' worth of urban space.

Food production initiatives are predominant in farming and agriculture projects, focusing on food security and supporting local farmers or communities. A notable example is the indoor vertical farming project in Riyadh, which plans a total growing area of 20,000 square meters distributed across 19 layers of planting stalls, with a daily yield capacity of up to 2,200 kilograms of leafy greens. Similarly, the rooftop gardens project in Ramallah installed 57 greenhouses across different neighborhoods, showcasing innovative urban agriculture practices.

In addition to these diverse activities, 32 projects incorporate a wide range of technical infrastructure to improve environmental sustainability and resilience. Features such as water irrigation systems, waste management solutions, water management technologies, flood risk mitigation systems, solar panels, and the use of local materials are commonly found. These facilities are particularly prevalent in city-wide urban parks, green belts, afforestation initiatives, and urban development projects. By integrating such infrastructure, these projects enhance the environmental quality of the urban landscape while also promoting energy efficiency, water conservation, and waste reduction. These efforts align with the broader objectives of urban sustainability and resilience reflected in the core objectives of these projects.

Medium- and large-scale projects predominantly integrate leisure and commercial activities, demonstrating a strong focus on creating multifunctional spaces that support recreation, social interaction, and economic opportunities. These projects often include urban parks, green belts, and urban (re)development initiatives, which aim to balance environmental benefits with economic and social functions. The prevalence of these activities in medium and large-scale projects underscores their crucial role in transforming urban areas into vibrant, accessible, and economically viable spaces.

City-wide and national projects, such as green infrastructure, urban development projects and afforestation campaigns, have broader goals that extend beyond localized impacts. These initiatives aim to enhance connectivity with existing urban infrastructure, improve the quality of life, and contribute to the overall beautification of cities. Afforestation campaigns, present in both medium-scale and city-wide projects, highlight a dual focus on ecological restoration and urban aesthetics.

Projects involving food production, such as rooftop farming and urban development projects, are more common in medium- and large-scale initiatives, highlighting their potential for scalability. Additionally, training and capacity-building components are predominantly found in medium, national and regional-scale projects. These initiatives often incorporate community engagement and skill-building activities, such as teaching planting techniques and crop maintenance. This cross-analysis highlights the influences of project scale on the inclusion of specific components, demonstrating how these elements are tailored to align with the initiatives' intended impact and geographical scope.

D. Thematic Analysis of the 60 Urban Greening Projects

This section presents a thematic exploration of the 60 selected urban greening projects. It provides a comprehensive lens to explore the multifaceted aspects of the projects while examining the governance structures, community participation strategies, sustainability efforts, and contributions to local and regional economic development.

The analysis incorporates a cross-examination of projects' types, scales, components and leading stakeholders, providing deeper insights into how these factors shape the design and implementation of urban green initiatives across Arab cities. This structured approach highlights the diversity and complexity of these projects, offering nuanced insights into varied strategies employed to enhance urban environments in the region.

D.1. Stakeholders Involvement in Urban Greening Initiatives

In the sample, the following figures can be noted:

- 7 projects involved public-private collaborations.
- 2 projects were led solely by local organizations and 4 projects were led by local authorities.
- 7 projects include collaborations with local organizations (2 projects) and local authorities (5 projects).
- 18 projects constituted direct community engagement in accordance with their core objectives.

The involvement of different stakeholders in urban greening projects varies significantly across countries and project types, reflecting differences in scale, objectives, and contextual priorities. Stakeholders play a pivotal role in advancing the goals of these projects by contributing resources, expertise, and governance frameworks that enable sustainable urban development. The 60 urban greening projects are either led by one actor or by a collaboration of diverse actors. Fig. 2.6 below illustrates the various stakeholders involved in the projects.



Fig. 2.6: Types of stakeholders involved in leading the 60 urban greening projects in 2024

There is a diversity of stakeholders involved in urban greening projects, with the largest number of projects being led by public administrations. This reflects the central role of governmental agencies in shaping urban greening agendas and highlights the priority that governments place on environmental sustainability. Governmental agencies play a significant role, especially in large-scale and city-wide projects, like urban park projects and in afforestation initiatives. This shows the public sector's leadership and centrality in driving traditional green space development and overseeing environmental management efforts.

A smaller proportion of projects are led exclusively by local authorities, local organizations, private companies, or regional/national/international organizations. This highlights that while individual stakeholders can independently drive and implement projects, the majority of urban greening initiatives rely on multi-stakeholder collaborations. Municipalities often take the lead in projects focused on urban parks, such as Al Nilein Park in Khartoum, Sudan, a medium-scale project that was independently managed by the Municipality of Khartoum. Similarly, local authorities have taken a leading role in Berbera Urban Development Project in Somalia (city-wide), Al Zohour Triangle in Amman, Jordan (small-scale), and Golden Jubilee Walkway in Muscat, Oman (medium-scale). Additionally, two medium-scale rooftop farming projects – one in Irbid, Jordan, and the other in a Palestinian refugee camp in Saida, Lebanon – are independently managed by local organizations. This highlights the critical role of local entities in implementing targeted projects that cater to specific community needs.

However, in the sample, collaboration among diverse stakeholders is, in fact, a defining feature of many urban greening projects in Arab countries, indicating the importance of collective action in addressing complex urban sustainability challenges. Some projects often combine efforts from local authorities, private companies, international organizations, and local NGOs to develop and implement their initiatives. Such collaborations are most frequently observed in afforestation initiatives, green infrastructure projects, and urban parks, as these projects often involve a mix of environmental, social, and economic goals that require coordinated efforts from multiple sectors. In contrast, projects like green belts and rooftop farming tend to exhibit limited collaboration. This might be due to the high level of technical expertise required for these initiatives, which reduces the scope of participation by NGOs and international organizations. Collaborative efforts are most common in medium-scale, large-scale, and city-wide projects, as these typically address complex urban challenges that require diverse expertise and resources.

Moreover, nine projects are driven by national/international and international/local collaborations, highlighting the role of global partnerships and funding agencies in supporting sustainable urban initiatives, particularly in countries facing resource or expertise constraints, as cases in Jordan, Syria, Somalia, and Djibouti.

Al Nilein Park, Khartoum

Al Nilein Park, located at the confluence of the Blue and White Niles in Khartoum, Sudan, is the city's first modern urban park, spanning 30,000 square meters. Developed and funded by Khartoum municipality, the park features family spaces, playgrounds, sports facilities, and green areas. Opened in 2018, it enhances livability, promotes recreation, and supports balanced development, showcasing the municipality's role in urban planning and infrastructure improvement. (https://araburban.org/en/infohub/projects/?id=8936)



Fig. 2.7: Green spaces and facilities in the park.

The involvement of various stakeholders in urban greening projects is shaped by the projects' type and scale as well as the broader governance context within each country. Stakeholder engagement varies significantly across countries, with some regions demonstrating a wider diversity of actors, while others remain more centralized with a predominant role of public authorities. Large-scale and city-wide projects typically require more diverse and collaborative governance structures, whereas smaller, more localized projects may be more easily driven by a single stakeholder or a limited group of collaborators. The increasing number of public-private and international collaborations reflects the need for broader expertise and resources to effectively address urban sustainability challenges and achieve long-term development goals.

Berbera Urban Development Project, Somalia

The Berbera Urban Development Project, led by Berbera municipality in partnership with UN-Habitat, aims to enhance urban systems and aligns with Somaliland's National Development Plan II. The project includes waste management reforms, a 20 km road network, and beachfront development. The municipality drives efforts to create inclusive, safe, and sustainable spaces, boosting employment for women and youth while advancing the urban agenda. (https://araburban.org/infohub/projects/?id=3835)



Fig. 2.8: Pedestrian sidewalks, one of the components of the project.

Fig. 2.7 retrieved from: https://rb.gy/18pv2k
Fig. 2.8 retrieved from: https://rb.gy/oe2mbj



Fig. 2.9: 3D aerial view of the Food Tech Valley.

Dubai Food Tech Valley, United Arab Emirates

Dubai's Food Tech Valley is a greening project focused on advancing food security in the UAE through sustainable agriculture, food innovation, and technology-driven production. Located in Dubai, it combines research facilities, vertical farms, and R&D centers to support food production with minimal environmental impact. The initiative aims to bolster local food production, reduce reliance on imports, and contribute to Dubai's goal of being a global hub for food technology. (https://araburban.org/infohub/projects/?id=7543)

Public-Private Collaborations

Within the sample in this report, seven projects are driven by public-private partnerships. Examples include the Dubai Food Tech Valley in the United Arab Emirates, a joint initiative by the Ministry of Climate Change and Environment and Wasl Properties, a private real estate development company. This project aims to establish a sustainable hub for urban agriculture and technology-driven food production, leveraging the strengths of governmental oversight alongside private sector innovation. Similarly, Ahl Misr Nile Walkway in Cairo, Egypt, a partnership between the Ministry of Housing's New Urban Communities Authority (NUCA) and City Edge Developments, a private real estate developer. This initiative aims to enhance public access to the Nile River through urban revitalization and aesthetic improvement. These collaborations underscore the complementary roles of public institutions and private entities in addressing urban development challenges.



Fig. 2.10: Ahl Misr walkway after construction.

Ahl Misr Nile Walkway, Egypt

The Ahl Misr Nile Walkway is a public promenade project in Cairo, Egypt, aimed at revitalizing the Nile riverfront and enhancing access to the waterfront. Stretching along several kilometers, it features pedestrian pathways, green spaces, restaurants, and recreational areas. The project also promotes tourism by seeking a vibrant and attractive space for both residents and visitors. (https://araburban.org/infohub/projects/?id=3790)

Fig. 2.9 retrieved from: https://rb.gy/pprbye
Fig. 2.10 retrieved from: https://rb.gy/bwobcq

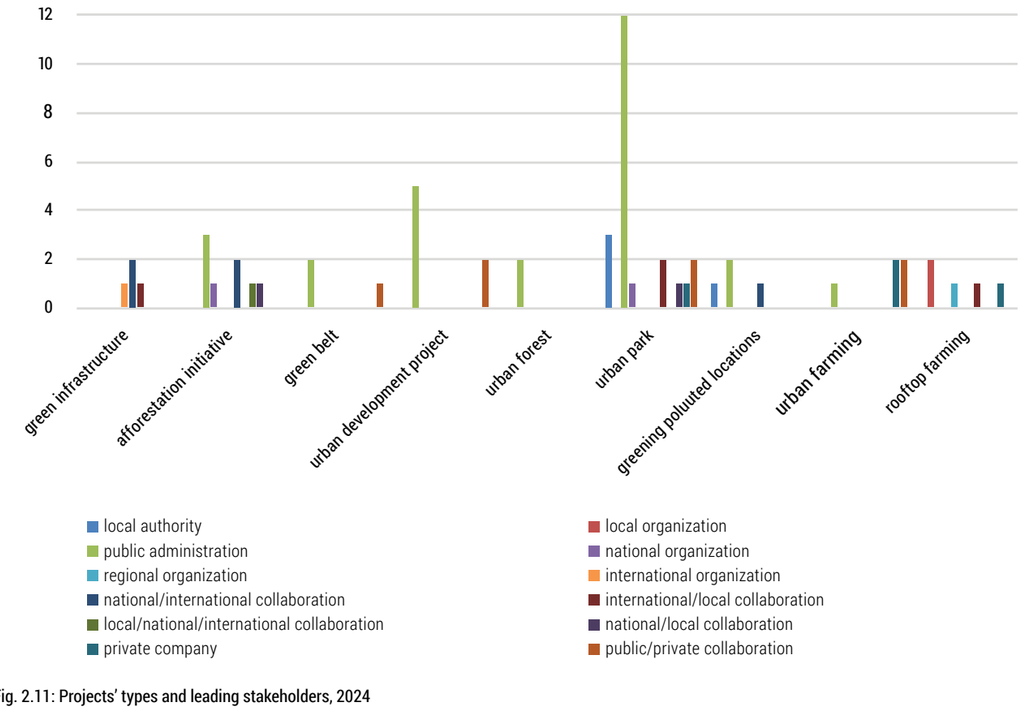

Fig. 2.11: Projects' types and leading stakeholders, 2024

A cross-analysis of project types and stakeholder involvement represented in Fig. 2.11 reveals that public-private collaborations are particularly common in large-scale urban development projects, urban farming and urban parks. These types of projects typically require more substantial investment, expertise, and coordination, making the collaboration between the public and private sectors essential. Besides, in urban parks and urban development projects, the combined effort of public and private sectors helps drive large-scale environmental and social transformation in urban areas. Private companies show particular interest in urban development projects, where their expertise in urban planning, design, and sustainability solutions is seen to be more significant. For instance, Dubai Reefs and Dubai Food Tech Valley demonstrate the importance of collaborative efforts between government ministries and private developers in implementing innovative environmental initiatives at scale. Likewise, large-scale urban park projects like Dounya Park in Algiers, Algeria, and Sports Boulevard in Riyadh, Saudi Arabia, highlight the critical role of public-private partnerships. The projects rely on such collaborations to achieve their objectives of creating accessible, multifunctional green spaces for urban communities.

Collaborations with Local Organizations and Authorities

Collaborations involving local organizations and municipal authorities are pivotal in urban greening projects, contributing to local knowledge and on-the-ground expertise to enhance planning and execution. Seven projects involved partnerships among municipalities and a mix of local, national, and international organizations. Notably, five of these collaborations engaged international organizations, with UN-HABITAT playing a significant role in two city-wide projects. Other international organizations, such as GIZ and UNICEF, focus on smaller-scale projects, while Aga Khan Trust contributes to medium-scale initiatives. These partnerships span various project types, from afforestation and urban park initiatives to rooftop farming and large urban development projects.

When examining collaborations with municipalities, it is clear that these partnerships occur across different project scales but are especially prevalent in small- to medium-scale projects. In contrast, municipal involvement is less common in city-wide projects and almost absent in large-scale initiatives.

Collaborations with local organizations are particularly notable in city-wide and medium-scale projects, often observed in afforestation initiatives and urban parks. Here, local expertise and strong community ties significantly enhance the reach and effectiveness of these projects, ensuring alignment with local needs and priorities. This highlights the essential role of localized partnerships in achieving impactful and sustainable urban greening outcomes.

This cross-analysis underscores the adaptability of local organizations and municipal authorities in managing projects across different scales and types, bringing essential community-centered perspectives that enhance project relevance and sustainability.

Direct Community Engagement in Greening Projects

Effective governance structures facilitate coordination among diverse stakeholders—public authorities, private sector partners, NGOs, and local communities—ensuring alignment with local needs, policies, and sustainability objectives (UN-HABITAT, 2016). Community engagement is a critical component of this process, as it enables residents and stakeholders to actively shape and support projects, fostering a sense of ownership and shared responsibility. Studies indicate that urban green spaces involving community input are more likely to achieve long-term success, as these projects are better aligned with the needs and values of the population they serve (Kabisch & Haase, 2014). Community-driven approaches such as public consultations, participatory workshops, and locally led initiatives enhance the adaptability and relevance of greening projects. These methods allow for the integration of diverse social and environmental needs, improving both project design and impact. For instance, incorporating community feedback on amenities, accessibility, and environmental features ensures that urban green spaces are well-utilized and valued by the community they serve (UNDP, 2021).

Community engagement is a vital aspect in many urban greening projects, with 18 out of 60 projects analyzed (30%) showcasing diverse levels of community involvement. These projects, which span afforestation initiatives, rooftop farming, urban parks and urban development projects, actively incorporate activities such as awareness campaigns, workshops, and participatory design processes, all of which contribute to aligning the projects with community needs and priorities.

In afforestation projects, community engagement is highly focused on educating and empowering local residents through workshops and awareness campaigns. For example, the "Al Yarmouk Cleaning Day" Awareness Campaign in Iraq, actively involves community members and volunteers in activities such as tree planting and maintaining green spaces. The strong involvement of public authorities and collaborations with diverse stakeholders in such projects further support community-led actions, ensuring sustainability through active resident participation.

Rooftop farming projects, in contrast, emphasize local organizations' role in equipping residents with cultivation techniques through training sessions, enabling sustainable crop maintenance. Moreover, in the Bahrain Rooftop Farming project, residents are invited to design their own rooftop farms and participate in implementation, fostering ownership and long-term commitment.

Community engagement initiatives also prioritize inclusivity, ensuring the active participation of women and vulnerable groups in project design and implementation. For example, the Improving Living Conditions in Disadvantaged Areas of Amman via Green Infrastructure (ILCA) project in Amman, Jordan (2017–2022) adopted a participatory design approach. Workshops were held with local communities to incorporate their feedback, and final designs were shared online to gather community input, ensuring a sense of ownership among diverse groups, including women, children, and the elderly.

Similarly, Al Agba Urban Forest in Tunis, Tunisia (2018–2019) empowered women by integrating them in forest management, particularly in maintenance activities. Additionally, the two-year program "Utilizing Digital Tools to Promote Human Rights and Create Inclusive Public Spaces in the Gaza Strip," led by UN-Habitat and UN Women, created three gender-responsive public spaces benefiting 130,000 residents. It empowered women and youth through workshops, awareness campaigns, and participatory design, including the Al-Zawayda community garden. Female architects gained practical experience, and the project emphasized inclusion, safety, and sustainability, contributing to SDGs 5 and 11. This project prioritized the needs of women and children, leveraging community collaboration to enhance the safety and accessibility of public spaces.

These examples highlight that direct community engagement not only enhances the relevance and sustainability of urban greening projects but also promotes inclusivity by empowering residents, particularly vulnerable groups. This active participation allows these individuals to contribute to and derive benefits from the initiatives, ensuring that their needs and perspectives are integrated into the project outcomes.

Rooftop Farming Project, Bahrain

Bahrain's Rooftop Gardening project, launched in 2019, promotes urban agriculture by transforming abandoned rooftops into green, livable spaces. It fosters community engagement, with families collaboratively planting and maintaining gardens. The initiative aims to enhance ecological quality, strengthen social bonds, and educate residents on sustainable practices. It inspires households to adopt environmentally friendly, creative agricultural techniques. (https://araburban.org/infohub/projects/?id=8515)



Fig. 2.12: The rooftop garden of a resident.

Social Inclusivity as a Driver of Greening Projects

Inclusivity plays a pivotal role in six of the analyzed urban greening projects, with a clear emphasis on fostering engagement across diverse local communities, including children, women, and individuals of all ages. These projects emphasize the importance of creating accessible and inclusive green spaces tailored to the diverse needs and aspirations of different demographic groups. By prioritizing inclusivity, these initiatives not only enhance the usability and relevance of urban green spaces but also promote social cohesion, strengthening the bonds within communities and encouraging active participation in sustainable urban development.

Most of these projects focus on the renovation of urban parks or coastal redevelopment, transforming public spaces into hubs of interaction, recreation, and cultural exchange. By prioritizing inclusivity, they extend beyond environmental goals to address broader societal needs, ensuring that green spaces are designed to accommodate and benefit members of the community.

The leadership of these projects often reflects a strong collaboration between international and local organizations, as well as partnerships with public administration. This collaborative approach ensures that the diverse needs of local communities are effectively met, combining the global best practices introduced by international organizations with the contextual expertise and cultural sensitivity of local stakeholders. For example, the two-

Al Agba Urban Forest, Tunisia

Al Agba Forest, Tunis's first urban recreational forest, spans 0.03 square kilometers and serves 300,000 residents across four delegations. Residents, particularly women, participate in forest protection and local product sales. Featuring eco-friendly cabins, solar lighting, and wellness trails, the project fosters recreation, supports solidarity economy initiatives, and enhances urban resilience by reducing pollution and promoting sustainable practices. (https://araburban.org/infohub/projects/?id=7852)



Fig. 2.13: The Wellness Trail of the Forest.

Fig. 2.12 UNIC Manama, retrieved from: https://shorturl.at/z8zQg

Fig. 2.13 retrieved from: https://tunisie.co/article/11651/region/tunis/une-foret-urbaine-agba-555017

year project “Strengthening the Social Stability and Resilience of Vulnerable Jordanian Communities and Syrian Refugees in Amman Against Flash Floods (2020 – 2022), led by UN-HABITAT in collaboration with Greater Amman Municipality, used the participatory City Resilience Action Planning Tool (CityRAP) to empower local communities and government officials to assess risks of flash floods and develop resilience strategies. Capacity-building workshops and awareness-raising campaigns were also conducted to increase community understanding of flood risks and enable their participation in implementing solutions. These initiatives are designed to include community members in planning and implementation, not only to create equitable opportunities but also to empower marginalized groups, strengthening their connection to the space and fostering a sense of ownership.

The emphasis on inclusivity in some initiatives showcases potential transformative impact of urban greening projects in fostering not only environmental sustainability but also social equity and dynamic urban living. By prioritizing community engagement and addressing diverse societal needs, such projects underscore the integral role of participatory approaches in driving meaningful urban transformations that resonate with and benefit members of the community.

D.2. Environmental and Resilience Aspects of Urban Greening Initiatives

In the sample, the following figures can be noted:

- 6 projects involve the use of high-tech tools, and nature-based solutions are found in 3 projects.
- 30 projects include greening and planting activities.
- 12 projects incorporate renewable energy solutions.
- 3 greening projects include components designed to directly address environmental impacts.
- 5 projects featured dedicated technical training, and workshops.
- 14 projects mentioned aspects of accessibility and connectivity to the city in their core objectives.

In this report, the majority of the selected urban greening projects in Arab cities encompass diverse initiatives that reinforce environmental resilience and social benefits. These projects frequently incorporate green technologies and renewable resources such as solar power and efficient water management systems to minimize environmental impact. Ecological design principles are also emphasized, focusing on creating biodiversity-supportive green spaces that are suited to local climates, thereby ensuring long-term viability. Additionally, technical training and knowledge transfer play a critical role, with capacity-building initiatives aimed at empowering local communities and organizations to manage and maintain projects. The introduction of new policies to institutionalize sustainable practices further supports these projects by embedding green infrastructure as an essential part of urban planning.

In examining the focus on sustainability and resilience within project objectives, it is notable that nearly all the analyzed projects explicitly address sustainability goals or resilience as part of their core objectives. This strong emphasis underscores a regional commitment to integrating sustainability into urban planning. Only four projects, mostly small-scale urban parks, do not prioritize sustainability in their stated objectives, likely due to their limited scope and focus on providing immediate recreational amenities. The widespread inclusion of sustainability goals in the majority of projects illustrates a conscious alignment with long-term environmental strategies, even in initiatives of varying scale and complexity. This alignment indicates that urban greening projects are viewed as integral to promoting ecological resilience and sustainable development throughout the Arab region.

High-Tech and Nature-Based Solutions in Urban Greening Projects

The integration of high-tech and smart tools is becoming increasingly prominent in six urban greening projects, reflecting a growing trend toward leveraging advanced technology to enhance sustainability and resilience outcomes. Projects focused on agriculture, such as those of Dubai Food Tech Valley and Riyadh Indoor Vertical Farming, use controlled environments and automated systems to optimize farming efficiency and reduce resource consumption. Similarly, smart technologies are integrated into urban development projects, such as Agri Hub Dubai and Dubai Reefs, where innovations like automated irrigation and environmental sensors ensure that resource use is precisely managed. In recreational and public space projects, technological innovations also play a significant role. For instance, Riyadh’s Sports Boulevard incorporates VR experiences to promote engagement, while the “Utilizing Digital Tools to Promote Human Rights and Create Inclusive Public Spaces” project in Gaza employs interactive digital platforms, such as Minecraft, to involve communities in designing safe and inclusive public spaces. Also, in Qur’anic Botanic Garden, Al-Rayyan, Qatar, the project employs in-situ and ex-situ techniques to maintain plant diversity and safeguard species important to the local ecosystem and cultural heritage. The landscaping includes plants adapted to Qatar’s climate, with attention to gardening practices like the use of water-conserving features such as wetlands and smart irrigation systems.

Riyadh indoor vertical farming, Saudi Arabia

The Riyadh Indoor Vertical Farming project, Saudi Arabia’s largest automated vertical farm, spans 20,000 m² across 19 layers, producing up to 2,200 kg of leafy greens daily. Employing cutting-edge automation from seeding to harvesting, it integrates sustainable agriculture with public engagement through educational exhibits. Funded by the Saudi Agricultural Development Fund, this initiative supports Vision 2030, advancing efficient, clean food production and inspiring future agricultural professionals. (https://araburban.org/infohub/projects/?id=7994)



Fig. 2.14: The management of a multi-floor vertical farm.

On the other hand, three projects use nature-based solutions to address ecological challenges. Al Zohour Triangle in Jordan enhances green infrastructure to promote urban resilience, “Strengthening the Social Stability and Resilience of Vulnerable Jordanian Communities and Syrian Refugees in Amman Against Flash Floods” project in Amman focuses on mitigating flood risks through integrating green infrastructure and “building climate resilience in Somalia’s urban areas” addresses vulnerabilities exacerbated by climate change, floods, droughts, and extreme weather events. These projects collectively demonstrate how a combination of technology and nature-based solutions can effectively support sustainable urban development across varied project types and objectives.

In urban farming projects, the integration of high-tech approaches is primarily observed in medium to large-scale projects, such as agri-tech hubs, Riyadh indoor vertical farming, and Dubai Food Tech Valley. These projects often involve collaborative efforts between technology and agri-business companies, such as YesHealth Group, and government entities at municipal and national levels. Such partnerships provide both the specialized expertise and infrastructure required for implementing advanced solutions. The focus on high-tech solutions in larger-scale projects highlights the significant resources and multi-stakeholder coordination needed to establish and maintain these innovations. In contrast, smaller-scale projects may have limited high-tech applications due to

Al Zohour Triangle, Jordan

In response to Amman’s flash flood risks, UN-Habitat Jordan implemented the Al Zohour Green Triangle pilot using nature-based solutions and Sustainable Urban Drainage Systems (SUDS). Technologies include bioretention and bioswales for water infiltration, a 2,100 m³ underground water detention tank, and reuse systems for irrigation. The project integrates flood resilience with urban design, offering a replicable model for managing stormwater sustainably. (https://araburban.org/infohub/projects/?id=3716)

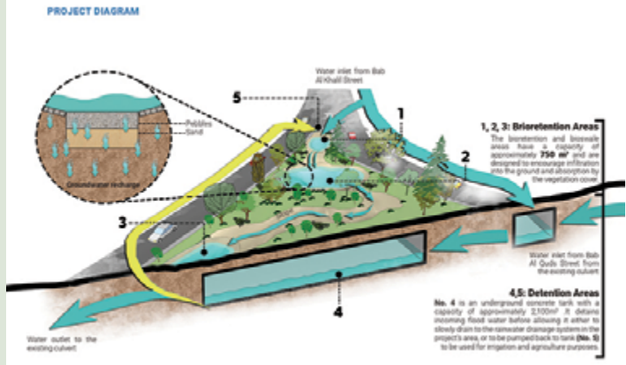

Fig. 2.15: Al Zohour Green Triangle pilot project Diagram.

Fig. 2.14 retrieved from: https://www.yeshealthgroup.com/farms/mowreq

Fig. 2.15 retrieved from: https://unhabitat.org/sites/default/files/2023/05/230319-en_flash_flood_project_brief_spreads.pdf

resource constraints, focusing instead on accessible, low-cost, nature-based solutions. This distinction highlights how project scale can influence the application of technology in urban greening initiatives.

Raising the Green Footprint

Thirty urban greening projects aim to raise the green footprint in cities, with a particular focus on large-scale afforestation and parks initiatives. These projects encompass a wide range of greening activities, from substantial tree planting efforts, like Saudi Arabia's Green Riyadh Project to urban afforestation projects in Bahrain and Iraq. Smaller-scale interventions, such as the Urban Micro-Lungs Initiative in Amman, Jordan, also contribute to this goal. Such initiatives are especially prevalent in urban park developments and beautification efforts, reflecting a strong commitment to expanding green spaces within urban areas. Examples include large-scale beautification and reforestation initiatives in Tunisia and the city-wide Djibouti Beautification project, both of which underscore a dedication to expanding urban greenery.

Initiatives aimed at enhancing urban greening are typically spearheaded by large institutions that integrate green infrastructure into broader urban development strategies. These efforts often involve collaboration with private companies, local organizations, and international partners. For instance, the Green Riyadh Project is managed solely by the Royal Commission for Riyadh City, reflecting a centralized governance model focused on transforming the urban landscape through extensive greening initiatives.

In contrast, the Million Oaks Afforestation Project in Erbil, Iraq, showcases a collaborative model led by the Kurdistan Regional Government in partnership with local organizations such as the Hasar Organization and Rwanga Foundation. This project demonstrates how diverse leadership can leverage various expertise and resources, tailored to the specific needs of the location, scale, and project objectives.

Integration of Renewable Energy and Sustainable Water Management Systems in Urban Greening Projects

In the analysis of urban greening projects, twelve initiatives prominently incorporate renewable energy solutions, particularly in medium to large-scale efforts across various categories, including green infrastructure, urban development, afforestation initiatives, green belts and urban parks. These projects utilize technologies like solar panels, energy-efficient irrigation systems, and recycling approaches (e.g., reuse of materials) to reduce environmental impact and enhance sustainability.

The emphasis on renewable energy is particularly noticeable in energy-intensive projects such as larger eco-tourism destinations, where sustainable practices are essential for minimizing operational footprint. Many of these projects are supported by government initiatives or collaborations with local and international organizations. For instance, Dubai's urban green initiatives are designed to align with national carbon-neutral goals, while the "Utilizing Digital Tools to Promote Human Rights and Create Inclusive Public Spaces" project in Gaza demonstrates this trend as it is backed by international entities like UN-Habitat and UN Women.

Efficiency in water and energy use, along with the reuse of materials, is particularly emphasized in renovation and redevelopment projects. For instance, Al Yarmouk Park in Mosul, Iraq, has introduced 300 new trees, including fruit and palm trees, which not only enhance the green cover but also absorb rainwater. The park features a solar-powered irrigation system that sustains these green areas, reflecting an effective integration of renewable energy in urban landscaping. In Al Zohour Triangle in Amman, Jordan, the project utilizes nature-based solutions to manage stormwater, mimicking natural water cycles through bioretention and bioswale systems, enhancing ground permeability. This approach works through two primary systems: stormwater bioretention and stormwater detention. For stormwater bioretention, a series of bioretention and bioswale areas are designed to enhance ground permeability through vegetation cover and facilitate the natural water cycle. Stormwater detention is demonstrated through the installation of an underground water storage tank. The project demonstrates how urban spaces can integrate green stormwater infrastructure to address flood risks, with potential for replication in over 120 similar sites across the city. Additionally, rooftop farming projects, mostly led by local organizations, such as the one in Irbid, Jordan, demonstrate innovative water-saving methods by utilizing recycled pipes and barrels for planting crops, coupled with automated drip irrigation systems, to optimize water usage in urban agriculture.

Al Yarmouk Park, Iraq

Al Yarmouk Park in Mosul, Iraq, was rehabilitated as a multi-purpose public space incorporating renewable energy and sustainable water management systems. Solar-powered irrigation sustains 300 newly planted trees and 800 m² of grass, supported by two wells. The $2 million project, launched in 2019 by UNDP, UN-Habitat, and Mosul Municipality, integrates local materials, fosters community participation, and promotes environmental recovery and economic opportunities.
(https://araburban.org/infohub/projects/?id=6946)



Fig. 2.16: Sports court for local communities.

Urban Greening to Fight Desertification

Three urban greening projects are designed to address environmental impacts in regions facing unique ecological challenges. One such example is the Green Belt project in Algiers, which aims to combat desertification by halting the encroachment of desert lands from the south toward the north of Algeria. This initiative focuses on planting trees and creating green corridors, protecting the city from expanding desert conditions while also improving air quality, reducing carbon emissions, and enhancing urban biodiversity. Similar objectives are evident in other Green Belt projects in Egypt and Libya. These environmental measures are essential for ensuring the long-term sustainability and resilience of urban greening projects, particularly in areas experiencing environmental degradation.

Rooftop Farming Project, Jordan

The Al-Husn Camp rooftop farming project, launched in 2016, introduced 34 greenhouses with sustainable water and renewable energy practices. Featuring automated drip irrigation and water collection tanks, it utilized recycled materials for construction. Soil was modified for roof use, balancing structural and environmental needs. Managed by a local CBO and funded by GIZ, the project fosters self-sufficiency, environmental revitalization, and cultural benefits for Palestinian refugees.
(https://araburban.org/infohub/projects/?id=4055)



Fig. 2.17: Interior view of the rooftop greenhouse in Al-Husn camp in Jordan.

Fig. 2.16 UNDP, retrieved from: https://medium.com/@UNDPArabic/rehabilitated-public-spaces-can-be-powerful-generators of-social-inclusiveness-and-greener-a3f0be21be3f

Fig. 2.17 retrieved from: https://library.fes.de/pdf-files/bueros/amman/15779.pdf



Fig. 2.18: The masterplan of the green belt in Tripoli.

Tripoli Green Belt, Libya

The Tripoli Green Belt Project aims to combat desertification by integrating urban greening across 700 hectares in Libya. It features parks, green corridors, and biodiversity-supporting landscapes irrigated with 40,000 cubic meters of treated wastewater daily. Collaborative efforts aim to balance urban growth and environmental preservation, enhancing residents' quality of life while restoring natural habitats. (https://araburban.org/en/infohub/projects/?id=9753)

Technical Training, Workshops, and Awareness Campaigns for Sustainability

Five urban greening projects feature dedicated technical training, workshops, and awareness campaigns to equip community members with skills in farming, tree planting, and maintenance practices. For example, the Qur'anic Botanic Garden in Al-Rayyan, Qatar, focuses on public engagement through workshops, exhibitions, and fieldwork sessions that deepen understanding of environmental conservation and plant knowledge inspired by Islamic scripture. This project actively involves the community in the preservation of natural resources and promotes a sustainable mindset. The Rooftop Gardens Project in Ramallah, Palestine, offers workshops on crop maintenance and plant care, providing ongoing technical support to participating families, ensuring practical knowledge in sustainable agriculture. Similarly, the Rooftop Farming Program in the Palestinian Refugee Camp in Saïda, Lebanon, empowers the community with ongoing training on cultivation techniques, disease prevention, and plant care, facilitating sustainable practices in local agriculture. The Rooftop Urban Farming Project in Helwan, Cairo, Egypt, also focused on knowledge transfer by offering training on hydroponic systems, and educating families on how to establish and maintain these setups. Sustainability in this project was further supported by Schaduf (a private company), which provided financial assistance to ensure the continued progress of rooftop farms. These initiatives highlight the essential role of training and technical support in promoting sustainable practices and building community resilience in urban greening projects.



Fig. 2.19: The masterplan of the green belt in Algiers.

Algiers Green Belt, Algeria

Launched in 2016, the Green Belt of Algiers aims to combat desertification by integrating agro parks and green spaces around the city. Part of the Green Dam Initiative, it enhances air quality, promotes biodiversity, and combats climate change. The project includes public gardens and 23 agro-parks, involving local communities in restoration efforts and tree planting to protect agricultural land and restore ecosystems. (https://araburban.org/infohub/projects/?id=7909)

Fig. 2.18 Coloco, retrieved from: https://www.coloco.org/projets/tripoli-green-belt-libye/

Fig. 2.19 retrieved from: https://shorturl.at/AAgPe

Qur'anic Botanic Garden, Qatar

The Qur'anic Botanic Garden in Qatar promotes sustainability through technical training, workshops, and awareness campaigns on plant conservation and sustainable gardening. It educates visitors on plants mentioned in the Qur'an, emphasizing preservation techniques and environmental responsibility. The garden's educational programs include exhibitions, fieldwork, and collaborations, fostering community engagement in sustainable horticulture and conservation efforts. (https://araburban.org/infohub/projects/?id=7989)



Fig. 2.20: The botanical garden museum surrounded by green spaces.

Projects' Accessibility and Connectivity to the City

Accessibility and connectivity are essential indicators of sustainability in urban greening projects, as they enhance ease of access for people and improve the connectivity between the projects and the surrounding urban environment (Kabisch & Haase, 2014). In the analyzed projects, 14 projects specifically highlight accessibility in their core objectives, focusing on urban parks, coastal development projects, and urban green redevelopment initiatives, including green belts. Accessibility considerations are integral in ensuring that these spaces are usable by all members of society and well connected to the broader urban infrastructure.

Some urban park projects, such as the Sports Boulevard in Saudi Arabia, are specifically designed to provide accessible green spaces within urban areas. A key aspect of this project is its proximity to Riyadh's residential zones and metro stations, facilitating easy access for residents and visitors through public transportation. The design promotes a car-free and pedestrian-friendly environment, encouraging more people to engage in the park. Similarly, coastal development projects like the Corniche Park in Abu Dhabi focus on connecting the urban center to the waterfront, creating accessible public spaces that enhance the relationship between the urban center and its coastline. The goal is to improve ease of access for residents and visitors, allowing people to seamlessly transition from the urban landscape to the waterfront, offering green spaces for recreation and relaxation along the way.



Fig. 2.21: Training of community members in Helwan.

Rooftop Urban Farming Project, Egypt

In 2018, Schaduf launched an urban agriculture project in Helwan, Cairo, establishing 500 rooftop farms using hydroponics. The project provided technical training, workshops, and awareness campaigns to 850 families, including young girls, on sustainable gardening practices. Families received support for seed germination and were taught to harvest twice a month. The project was funded by Drosos Foundation and aimed at environmental and socio-economic improvement. (https://araburban.org/infohub/projects/?id=4041)

Fig. 2.20 Qur'anic Botanic Garden website, retrieved from: https://qbg.org.qa/

Fig. 2.21 retrieved from: https://schaduf.com/projects/helwan-project/#gallery-6559b097d535d-7



Fig. 2.22: Main green zones of the Sports Boulevard.

Sports Boulevard, Saudi Arabi

The Sports Boulevard in Riyadh is a 135-kilometer linear park integrating green spaces, cycling tracks, and pedestrian paths. It enhances accessibility by connecting 16% of the city's population and three major metro stations. Promoting active lifestyles, the project fosters connectivity between eight unique districts, blending recreational facilities, arts, and sustainable design to create a livable urban environment. (https://araburban.org/infohub/projects/?id=7590)

Urban greening projects often aim to enhance connectivity by linking green spaces with transportation networks and pedestrian-friendly infrastructure. For example, the AL-Inbiâat Urban Park in Agadir, Morocco (2020–Ongoing), enhances accessibility through multiple access points and inclusive infrastructure designed to accommodate individuals of all abilities. This focus on connectivity ensures equitable access to green and recreational spaces for residents city-wide. Besides, many green initiatives in the region aim to promote walkability and integration with public transportation networks. By incorporating pedestrian paths, bike lanes, and transit-friendly designs, these projects reduce reliance on cars and enhance environmental sustainability. For example, urban parks and coastal development projects highlight how green spaces can encourage walking and connectivity to public transit systems, making them more accessible to a broader population. The Umm Al Seneem Park Doha (2019 – 2022) promotes physical activity and community engagement with sports, cultural, and recreational facilities, as well as accessible cycling and walking infrastructure.

Neighborhood-focused accessibility projects aim to provide residents with convenient and equitable access to green spaces. For instance, the Rome Park Project in Djibouti (2019) offers accessible recreational facilities for families, local residents, and athletes, particularly cyclists, creating a community hub that fosters active living and engagement. By prioritizing proximity and accessibility, these projects ensure that green spaces are seamlessly integrated into residents' daily lives. These examples reflect how accessibility is often integrated into urban greening projects to promote inclusive urban spaces that are easily reachable by a wide range of people. Connectivity to public transportation systems and urban centers is a central element in the design of many of these projects, supporting sustainable mobility and aiming at creating green spaces that are not isolated but integrated into the fabric of the city.



Fig. 2.23: 3D aerial of the Corniche, facing Lulu Island.

The Corniche Park, United Arab Emirates

The Corniche Abu Dhabi is an 8-kilometer waterfront promenade offering seamless accessibility via taxis, buses, and walkable connections to key neighborhoods. It integrates cultural landmarks, recreational areas, and scenic beaches like the Blue Flag-awarded Corniche Beach. It connects to attraction sites such as Marina Mall and Heritage Village, serving as a vibrant, inclusive city landmark. (https://araburban.org/infohub/projects/?id=8578)

Fig. 2.22 retrieved from: https://www.flickr.com/photos/200064013@N07/53528526035/

Fig. 2.23 retrieved from: https://www.landinc.ca/abudhabicorniche

Some greening projects prioritize connectivity by linking communities to essential services, generating economic and social benefits. For instance, the Agri Hub in Dubai, United Arab Emirates (2022–Ongoing), provides local farmers with access to advanced farming technologies and expanded market opportunities, allowing farmers to improve productivity and profitability. By creating a centralized hub for agricultural services, the project contributes to the sustainability of urban livelihoods.

D.3. Economic Impact of Urban Greening Initiatives

In the sample, the following figures can be noted:

- **29 projects address economic development goals in their core objectives.**
- **9 projects explicitly target job creation.**
- **12 projects target agritourism objectives.**
- **16 projects focus on fostering eco-tourism.**

In the sample, 29 projects (48%) explicitly target economic development as a core objective. These projects aim to directly stimulate economic growth through job creation, urban aesthetics and beautification, and attracting investment. Even projects without an explicit economic focus often generate economic benefits by providing public amenities, improving quality of life, and developing green spaces that draw business and attract investment.

Additionally, many greening projects integrate recreational and commercial services such as cafés, snack bars, markets for local farmers, and retail shops, boosting local economies. Furthermore, large corporations often support these greening initiatives as part of their CSR and ESG policies and marketing strategies. By improving urban aesthetics, fostering green industry jobs, increasing property values and driving tourism, these projects contribute to economic growth and enhance livelihoods across diverse social groups and stakeholders.

Job Creation and Economic Support

In the sample nine projects (15%) explicitly targeted job creation, livelihood improvement, or local business support. These projects aim to generate employment opportunities, support local economies, and empower communities economically. For instance, the Dubai Reefs project in the United Arab Emirates, a large-scale development, seeks to create over 30,000 green jobs through public-private collaboration. Similarly, the Rooftop Farming Program in the Palestinian Refugee Camp in Saïda, Lebanon, works with Women Cooperative Societies (WCS) from Nashet Association's Zawedetna Project to support the purchase of surplus crops, ensuring financial sustainability. Also, rooftop farming projects in Helwan, Egypt, provides socio-economic benefits to low-income communities through microcredits, ensuring long-term economic stability.

The Bab Qinnesrine Park project in Aleppo, Syria, aims to boost the local economy through job creation in commercial activities, while Egypt's Cairo Greenbelt project focuses on job opportunities and economic returns from timber cultivation. Meanwhile, the Berbera Urban Development Project in Somalia enhances employment opportunities for women and youth by improving urban infrastructure, promoting local businesses through beach development and advocating a circular approach to local economic development.

These examples highlight the direct economic benefits urban greening projects can bring to local communities. These initiatives involve diverse stakeholders, including local organizations, private companies, public authorities, and international collaborators. Most of these projects are medium-scale, emphasizing the importance of collaborative efforts in driving economic growth and creating sustainable livelihoods within local communities.

Urban greening projects can empower local communities economically through training and workshops. The Al Yarmouk Park project in Mosul, Iraq, initially not focused on economic development, created 236 jobs for unemployed residents, including 10 positions for women, and launched a horticultural training program for 30 women without a fixed income. This initiative revitalized the park while fostering long-term economic recovery by transforming it into a community hub with job opportunities. Additionally, the Al Agba Urban Forest project in Tunis, supported by the Tunisian government and inaugurated by the Minister of Agriculture, Water Resources, and Fisheries, implemented a solidarity economy model. The initiative provided women with a sales point for local products, promoting economic inclusion and supporting forest management. These projects highlight the diverse approaches urban green initiatives can boost local economies, empower community members, and drive long-term economic inclusion.



Fig. 2.24: Master Plan for the Bab Qinnesrine Park Rehabilitation Project.

Bab Qinnesrine Park Project, Syria

The Bab Qinnesrine Park project in Aleppo, Syria, aims to revitalize a historic area by creating a green space with recreational and cultural activities. It focuses on job creation and economic support through commercial activities like shops and restaurants, boosting the local economy. The park will also provide employment opportunities and enhance the quality of life for nearby residents, particularly those in informal settlements. (https://araburban.org/en/infohub/projects/?id=7654)

Agritourism and Food Production as Drivers of Local Economic Impact

In the sample, twelve projects (20%) target local economic impact with a strong emphasis on agriculture and agritourism objectives. These projects are mostly medium-scale, such as rooftop farming initiatives in Jordan, Lebanon, and Egypt, which focus on urban food production and community empowerment. The rooftop farming example in Irbid, Jordan, aims to reintroduce vegetation into the camp and create possibilities of self-sufficiency and activate the roof as a productive space. On a larger scale, projects like the Agri-hub in Dubai, Dubai Food Tech Valley, Dubai Reefs, and Dounya Park incorporate agritourism and food production into their core objectives, aiming to boost local agricultural economies and create sustainable agricultural systems. These large-scale projects often involve significant collaboration between private companies and public-private partnerships, highlighting the role of both entities in driving innovation and economic growth. In contrast, rooftop farming projects see greater involvement from local, regional, and international organizations, which play an essential role in providing expertise and supporting local communities. Greenbelt projects in Algeria and Egypt, as well as city-wide initiatives led by public authorities, also place considerable focus on agricultural production, such as the introduction of agro-parks in Algeria. All these projects demonstrate a growing recognition of the economic potential of agritourism and food production in urban settings.

Tourist Attraction in Urban Greening Projects

In the sample sixteen projects (26%) focus on fostering eco-tourism and transforming spaces for tourist attractions. These initiatives are commonly prevalent in medium and large-scale urban parks and coastal development projects. Many of these projects aim to enhance the aesthetic and recreational value of urban areas, attracting tourists and contributing to the local economy. Urban development projects also occasionally target tourism, seeking to create attractive and sustainable spaces for visitors, although this focus is generally absent in rooftop farming projects. The Maritime Promenade in Casablanca, Morocco, aims to boost the city's appeal to tourists, thereby strengthening its position as a desirable destination. The inclusion of commercial areas such as restaurants, coffee shops and underground parking facilities suggests the potential for economic opportunities within the region. The majority of eco-tourism and tourist attraction interventions are medium-scale projects, typically led by government authorities, although in some cases, collaborations with international organizations and private companies help bring expertise, resources, and innovation.



Fig. 2.25: 3D Rendering of the Dubai Reefs.

Dubai Reefs Project, United Arab Emirates

The Dubai Reefs project aims to create the world's largest artificial reef, boosting marine biodiversity and supporting sustainable fisheries. It will generate over 30,000 green jobs, enhance food security, and promote eco-tourism. The project includes sustainable floating communities, eco-resorts, and marine research facilities, fostering job creation, economic opportunities, and marine conservation while positioning Dubai as a leader in sustainability. (https://araburban.org/infohub/projects/?id=7608)

Fig. 2.24, SITES INTERNATIONAL, retrieved from: https://www.sitesint.com/projects/bab-qinnesrene-park/

Fig. 2.25 retrieved from: https://newatlas.com/environment/dubai-reefs-worlds-largest-ocean-restoration-project/

Dubai Agri-Hub, United Arab Emirates

The Dubai Agri Hub is an innovative agritourism project combining urban farming, eco-friendly dining, retail, and entertainment, powered by renewable energy. It promotes local food production, supports farmers by providing direct markets, and creates over 10,000 jobs. This green initiative also enhances Dubai's food security, offering a unique agritourism experience, while fostering local economic growth through sustainable agriculture and tourism. (https://araburban.org/infohub/projects/?id=7661)



Fig. 2.26: Agri Hub Dubai Aerial Rendering.

A compelling example of leveraging greening projects for touristic attraction is the transformation of a closed landfill into an urban park. The Oued Smar Urban Park in Algiers illustrates the potential of urban greening to address environmental and social challenges while creating opportunities for economic growth. One of the primary objectives of the initiative is to promote eco-tourism and serve as a relaxation and recreation destination for city dwellers, particularly those in the rapidly expanding eastern region. The park's features not only enhance the recreational appeal of the space but also create opportunities for local employment, tourism-related services, and small business development. This initiative demonstrates how urban greening projects can contribute to sustainable urban development by transforming underutilized or hazardous sites into vibrant, multifunctional spaces that integrate environmental restoration, recreational use, and economic benefits.

Rooftop Farming Project, Lebanon

The Rooftop Farming program empowers Palestinian women in Lebanon's refugee camps by creating job opportunities and generating income through organic farming on rooftops. This initiative reconnects refugees with their agricultural heritage while promoting sustainable food production. It includes training, infrastructure support, and a market for surplus crops, contributing to local economic growth and food security in these densely populated areas. (https://araburban.org/infohub/projects/?id=7865)



Fig. 2.27: Farming in plastic pipes inside the greenhouses.

Fig. 2.26 retrieved from: https://urb.ae/projects/agrihub/

Fig. 2.27, Nashet.org, retrieved from: https://www.facebook.com/nashet.association/photos/pb.100064857691372.-2207520000/411766695159318 6/?type=3



Fig. 2.28: Maritime Promenade of Hassan II Mosque after construction.

The Maritime Promenade, Morocco

The Maritime Promenade of Hassan II Mosque in Casablanca is a 1.5-kilometer seaside development aimed at boosting tourism. It features three zones: a panoramic lookout, recreational spaces, and a cultural area with shops and restaurants. With beach access, sports facilities, and green spaces, it enhances the city's appeal as a tourist destination while providing public spaces for residents and visitors. (https://araburban.org/infohub/projects/?id=7768)

E. Proposed Framework for Integrated Urban Greening Initiatives in Arab Cities

Urban greening initiatives in Arab cities must address unique socio-economic, environmental, and governance challenges while aligning with global sustainability and resilience strategies. This section presents a framework that synthesizes insights from the analysis of 60 urban greening projects and existing literature on sustainable urban development.

The proposed framework serves as a guiding structure to understand, explore, and implement urban greening initiatives, ensuring they are integrated, inclusive, and sustainable. It provides a structured approach to design projects that balance environmental, social, and economic benefits while addressing region-specific challenges. The framework also facilitates comparative analysis, enabling cities to identify best practices and adapt strategies to their local contexts while exploring their key components and broader impacts.

The framework is built on three interrelated dimensions:

- **Governance, Public Engagement, and Inclusivity**

This dimension focuses on institutional arrangements, stakeholder collaborations, and community participation. Effective governance models involve public-private partnerships, municipal leadership, and engagement with NGOs and local communities. The framework emphasizes inclusive decision-making processes and mechanisms to overcome barriers to participation, particularly for marginalized groups.



Fig. 2.29: Plants and vegetation at Oued Smar Urban Park.

Oued Smar Park, Algeria

The Oued Smar Urban Park in Algiers transforms a 45-meter-high landfill into an eco-tourism destination. Covering 0.5 km², it features renewable energy from biogas, treated water systems, and diverse vegetation. Visitors can enjoy recreational facilities, cycling paths, and a landfill museum. This rehabilitation project highlights sustainable practices, promoting ecological awareness and relaxation for the city's residents and tourists. (https://araburban.org/infohub/projects/?id=7911)

Fig. 2.28 retrieved from: https://www.istockphoto.com/photo/hassan-ii-mosque-maritime-promenade-casablanca-morocco-gm1765888852-545326411

Fig. 2.29 M.D.S AKLI (Ath Salem), retrieved from: https://www.flickr.com/photos/144330620@N04/33314161410/

- **Environmental Sustainability and Resilience**

Given the region's challenges such as water scarcity, desertification, and climate change, urban greening efforts must incorporate nature-based solutions, adaptive strategies, and efficient resource use. This includes afforestation, green infrastructure, climate-responsive design, and integration of technologies like smart irrigation and renewable energy.

- **Economic Development**

Urban greening initiatives contribute to local economies by creating green jobs, enhancing tourism, and increasing property values. The framework highlights the importance of financial sustainability, including diversified funding sources, long-term maintenance strategies, and economic incentives for private-sector involvement.

By embedding governance, environmental, and economic considerations into urban greening initiatives, the framework supports long-term sustainability and resilience in Arab cities. Future research and policy efforts should refine and expand upon these principles to enhance the impact of urban greening in the region.

Table 2.1: The three-dimensional framework and its sub-entries

Three Interrelated Dimensions	Sub-Entries
Governance, Public Engagement, and Inclusivity	Management of the project; partnerships; public engagement; community involvement in decision-making or in managing projects; social inclusivity.
Environmental Sustainability and Resilience	Increasing the green footprint; water management and fighting desertification; use of green technologies; renewable resources and ecological design; connectivity and ease of access; technical knowledge transfer and capacity development.
Economic Development	Jobs and businesses' creation; support for livelihoods; agricultural production; recreation and tourism economy.

The framework is also built on several sub-dimensions that serve as analytical layers under each one of the three pillars as shown in Table 2.1. These sub-dimensions were used to assess projects and gain a deeper understanding of their governance structures, environmental impact, and economic contributions. This approach enables a comprehensive understanding of each project while allowing for transversal analysis across cities, bringing insights into how different governance structures, sustainability processes, and economic impacts manifest across varying contexts. Hence, the transversal analysis synthesized qualitative and quantitative data that create a narrative to describe the distinct characteristics of urban greening across Arab cities.

The proposed framework illustrated in Fig. 2.30 serves as a practical tool for cities to implement urban greening initiatives effectively, ensuring they contribute to long-term resilience, economic growth, and social equity. By offering a structured yet adaptable approach, it supports policymakers, planners, and stakeholders in making informed, strategic decisions that maximize the impact of urban greening across the Arab region.



Fig. 2.30: The three-dimensional framework for sustainable urban greening initiatives, 2024.

SUMMARY OF THE 60 URBAN GREENING PROJECTS

A resident taking care of trees and plants in his rooftop garden, Beirut, Lebanon, source: https://shorturl.at/NgQPK

LIST OF THE 60 URBAN GREENING PROJECTS

The 60 urban greening projects were grouped in the following nine categories, using the typology of urban greening initiatives (see Table 1.1), which was developed based on a review of existing literature.

A. Green Infrastructure Development and Management

1. Improving Living Conditions in Disadvantaged Areas of Amman Via the Implementation of Green Infrastructure (ILCA).
   Amman, Jordan
2. Strengthening the Social Stability and Resilience of Vulnerable Jordanian Communities and Syrian Refugees in Amman Against Flash Floods.
   Amman, Jordan
3. "Utilizing Digital Tools to Promote Human Rights and Create Inclusive Public Spaces" Project.
   Gaza, Palestine
4. Building Urban Resilience to Climate Change and Transitioning to Green Economy.
   Mogadishu, Somalia

B. Afforestation Initiatives

5. Forever Green- Afforestation Campaign.
   Manama, Bahrain
6. Urban Landscaping Design and Beautification Project.
   Budaiya, Bahrain
7. One Comorian, One Tree.
   Moroni, Comoros
8. Djibouti City Beautification Project.
   Djibouti, Djibouti
9. Million Oaks Afforestation Project.
   Erbil, Iraq
10. National Afforestation Campaign.
    Baghdad, Iraq
11. Urban Micro-Lungs Initiative.
    Amman, Jordan
12. Green Riyadh Project.
    Riyadh, Saudi Arabia

C. Green Belts

13. The Greenbelt of Algiers.
    Algiers, Algeria
14. The Cairo Greenbelt.
    Cairo, Egypt
15. Tripoli 'Greenbelt'.
    Tripoli, Libya

D. Urban Development Projects

16. Ahl Misr Nile Walkway.
    Cairo, Egypt
17. Shuwaikh Beach Development and Beautification Project.
    Kuwait, Kuwait
18. Nouakchott Coastline Development, Mauritania.
    Nouakchott, Mauritania
19. The Maritime Promenade of Hassan II Mosque.
    Casablanca, Morocco
20. "Humanizing the City" approach, the pilot of Tahlia Street Revitalization.
    Riyadh, Saudi Arabia
21. Sports Boulevard.
    Riyadh, Saudi Arabia
22. Corniche Park.
    Abu Dhabi, United Arab Emirates

E. Urban Forest

23. Bouskoura-Merchich Forest Development Project.
    Casablanca, Morocco
24. Al Agba Urban Forest.
    Tunis, Tunisia

F. Urban Park's Development and Management

25. Dounya Park.
    Algiers, Algeria
26. Rome Park Project.
    Djibouti, Djibouti
27. Abdeen Square Development.
    Cairo, Egypt
28. Renovating the Azbakiya Park.
    Cairo, Egypt
29. The Family Park.
    Cairo, Egypt
30. Obeidi Park.
    Baghdad, Iraq
31. Public Spaces for Recovery and Inclusivity: Mosul's Al Yarmouk Park.
    Mosul, Iraq
32. Al Zohour Triangle.
    Amman, Jordan
33. Al Shaheed Park.
    Kuwait, Kuwait
34. AL-Inbiâat Urban Park.
    Agadir, Morocco
35. Arab League Park Rehabilitation Project.
    Casablanca, Morocco
36. Velodrome Urban Park.
    Casablanca, Morocco
37. Golden Jubilee Walkway.
    Muscat, Oman
38. Al-Hilal Linear Park.
    Al Hilal, Qatar
39. Umm Al Seneem Park.
    Doha, Qatar
40. King Salman Park.
    Riyadh, Saudi Arabia
41. Al Nilein Park.
    Khartoum, Sudan
42. Bab Qinnesrine Park.
    Aleppo, Syria
43. Jubail Mangrove Park.
    Abu Dhabi, United Arab Emirates
44. Umm Al Emarat Park.
    Abu Dhabi, United Arab Emirates
45. Greater Aden Park.
    Aden, Yemen

G. Greening Polluted Locations

46. Oued Smar Urban Park.
    Algiers, Algeria
47. Al-Azhar Park and the Revitalization of Darb al-Ahmar.
    Cairo, Egypt
48. Fustat Park.
    Cairo, Egypt
49. Baghdad Sustainable Forests Project.
    Baghdad, Iraq
50. Berbera Urban Development Project.
    Berbera, Somalia

H. Urban Farming

51. Qur'anic Botanic Garden.
    Al-Rayyan, Qatar
52. Riyadh Indoor Vertical Farming.
    Riyadh, Saudi Arabia
53. Agri Hub.
    Dubai, United Arab Emirates
54. Dubai Food Tech Valley.
    Dubai, United Arab Emirates
55. Dubai Reefs.
    Dubai, United Arab Emirates

I. Rooftops

56. Roof Gardens.
    Manama, Bahrain
57. Rooftop Urban Farming Project in Helwan.
    Cairo, Egypt
58. Martyr Azmi Al-Mufti (Al-Husn) Camp Rooftop Farms.
    Irbid, Jordan
59. Rooftop Farming Program in Palestinian Refugee Camp.
    Saïda, Lebanon
60. Rooftop Gardens Project.
    Ramallah, Palestine

A. Green Infrastructure Development and Management

1 Improving Living Conditions in Disadvantaged Areas of Amman Via the Implementation of Green Infrastructure (ILCA)*

Amman, Jordan
[2017 – 2022]

Project Overview

Improving Living Conditions in Disadvantaged Areas of Amman (ILCA) is an urban regeneration project established to enhance existing Public Open Spaces (POS) and incorporate new Green Infrastructure (GI) elements in selected areas of East Amman. The project was developed in response to the partially unplanned infrastructure of East Amman's neighborhoods, which has led to a scarcity of public open spaces, a lack of greenery, and poor connectivity of sidewalks, stair networks, and streets.



Fig. 3.1: The Seventh Stair on Al-Quds Street after rehabilitation works.

Objectives

The project aims to:
- Create a sense of ownership of public spaces and improve residents' quality of life by creating new public open spaces or regenerating green infrastructure networks through participatory planning and design approaches.
- Enhance connections to local public transport, maintain accessibility to public spaces for all genders, and conserve urban biodiversity.
- Implement integrated participatory development approaches for Public Open Spaces (POS) within partner institutions through strategic capacity development measures. These include raising awareness about the importance of green infrastructure in mitigating the impacts of climate change.

Components

The project consists of three phases:
- Phase 1: implement green infrastructure in chosen pilot sites. The interventions include the installation of amenities, benches, and shaded recreational areas in playgrounds, renovation of urban public staircases, revitalization of green areas in unused open spaces, widening narrow sidewalks and footpaths to improve access to public spaces, enhancing playground safety for children and accessibility for the elderly and physically challenged.
- Phase 2: Replication of pilot activities implemented in Phase (1) in new locations and extensions of existing public open space networks.
- Phase 3: Development of a handbook titled "Stepwise Implementation Strategy: 11 Steps for Participatory Green Infrastructure Projects".



Fig. 3.2: ILCA projects sites in East Amman.

Project Scale and Location

The project focuses on specific locations in East Amman, initially piloted and then replicated across more areas in the city. It is targeting underutilized or poorly connected spaces in East Amman with low greenery and poor public space infrastructure.

Project Main Stakeholders

Owner/Developer (Public)
Jordanian Ministry of Environment
German Federal Ministry for Economic Cooperation and Development (BMZ)

Consultant/Designer
PRaxis Architecture and Urban Design

Funder
German Federal Ministry for Economic Cooperation and Development (BMZ)

Contractor/Implementer
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
Greater Amman Municipality (GAM)

Participatory Approach

The project encourages community involvement in the research, design, and management processes of newly established or revitalized green infrastructure networks. Participatory design workshops with the local community were held, and final designs were shared with the communities on social media to gather feedback through dedicated online surveys.

Knowledge Transfer

Besides workshops and community involvement in the project, a handbook named "11 Steps for Participatory Green Infrastructure Projects" was developed to guide the Greater Amman Municipality's employees in planning and implementing Urban Green Infrastructure (UGI) projects in Public Open Spaces (POS) using an inclusive participatory approach. The project uses capacity-building workshops and awareness-raising campaigns.

Promoting Social Cohesion and Inclusivity

The project improves public spaces and creates a sense of ownership through community involvement, enhances social cohesion, and improves accessibility to urban amenities, promoting inclusivity and social integration. As it focuses on participatory design with involvement from diverse community members, the project ensures accessibility for all, especially vulnerable groups (women, children, and elderly).

Aiming For Environmental Sustainability and Resilience

The project highlights the importance of green infrastructure and its role in mitigating climate change. Introducing green infrastructure reduces air and water pollutants, conserves urban biodiversity, and mitigates urban heat waves, promoting environmental resilience.

* https://araburban.org/infohub/projects/?id=7572

Fig. 3.1 & 3.2 retrieved from: https://www.giz.de/en/downloads/giz-2022-en-Implementation%20Strategy.pdf

2 Strengthening the Social Stability and Resilience of Vulnerable Jordanian Communities and Syrian Refugees in Amman Against Flash Floods *

Amman, Jordan
[2020 – 2022]

Project Overview

"Strengthening the Social Stability and Resilience of Vulnerable Jordanian Communities and Syrian Refugees in Amman Against Flash Floods" is a project led by UN-HABITAT and the Greater Amman Municipality and addresses flood mitigation in the capital city of Jordan. This project tackles flooding that arises from unplanned urbanization, especially in its most economically disadvantaged sectors, leading vulnerable populations to a decline in their access to essential quality services.



Fig. 3.3: Community consultation and discussion.

Objectives

The project aims to:
- Enhance the resilience and capabilities of both the government and the community in effectively managing flash floods.

Components

The project involves key strategies and interventions:
- Flood risk assessment and flood hazard mapping of Downtown Amman Study that pinpointed areas prone to flooding, enabling the implementation of short, medium, and long-term solutions to address the issue.
- City Resilience Action Planning Tool (CityRAP), a participatory resilience planning methodology that empowers communities to comprehend and strategize actions for risk reduction and resilience enhancement.
- Two green infrastructure pilot projects including; the Water harvesting systems installation and green pockets initiative, as well as Al Zohour Green Triangle.
- Capacity Building of local communities and officials through training workshops.
- Awareness-raising campaigns aimed to enhance community understanding and awareness of flood risks and to empower them to participate in the execution of the suggested solutions.

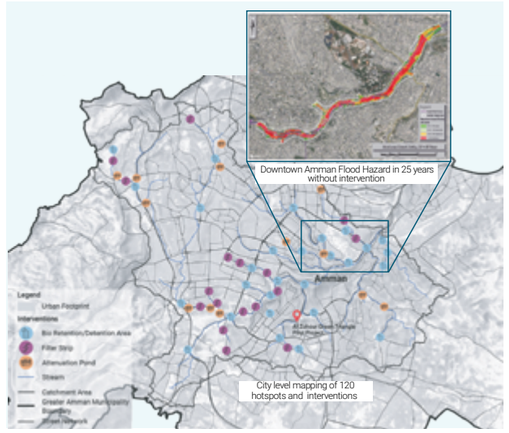

Fig. 3.4: Flood risk assessment and flood hazard and interventions mapping.

Project Scale and Location

The project is city-wide, benefiting an estimated 35,000 residents, specifically in downtown Amman, where flash floods are frequent due to rapid unplanned urbanization. The pilot project was implemented in Al Zohour Green Triangle, a location prone to flooding.

Project Main Stakeholders

Owner/Developer (Public)
Greater Amman Municipality

Owner/Developer
UN-Habitat Jordan

Funder
Government of Japan

Contractor/Implementer
Greater Amman Municipality
UN-Habitat Jordan

Integrated Flood Management Solutions

The project employs Flood Hazard Mapping, CityRAP participatory resilience planning, and Sustainable Urban Drainage Systems (SUDS) to manage urban flood risks. It also uses water harvesting systems and green pockets to manage runoff and reduce flood impacts.

Capacity Building in Flood Management

The project builds capacity within both local communities and government officials through training on flood risk management and the use of resilience tools. It enhances knowledge and skills in flood preparedness and urban planning, improving overall flood response capabilities.

Raising Local Resilience to Reduce Urban Flood Risk

The green infrastructure solutions reduce urban runoff and mitigate flood risks, providing long-term environmental benefits and raising resilience to flooding in vulnerable urban areas.

* https://araburban.org/infohub/projects/?id=3716

Fig. 3.3, UN-Habitat/Deema Abu Thiab, retrieved from: https://unhabitat.org/news/22-jan-2021/community-consultation-workshop-in-downtown-amman-to-discuss-flash-floods-risks

Fig. 3.4, UN-Habitat, retrieved from: https://unhabitat.org/sites/default/files/2023/05/230319-en_flash_flood_project_brief_spreads.pdf

3 "Utilizing Digital Tools to Promote Human Rights and Create Inclusive Public Spaces" Project

Gaza, Palestine
[2017 - 2018]

Project Overview

"Utilizing Digital Tools to Promote Human Rights and Create Inclusive Public Spaces" in the Gaza City, Palestine, is a two-year program led by UN Women and UN-Habitat. The initiative aimed to co-design and implement three inclusive public gardens across the city. By adopting a participatory approach, the program engages communities in designing public spaces using digital tools such as Minecraft and SaftiPin. It is worth noting that the city is going through dire circumstances due to war, which has led to the destruction of these public spaces.



Fig. 3.5: Community workshop for designing Al Shoka Community Garden using Minecraft.

Objectives

The project aims to:
- Build urban environments that support all residents, particularly women and children, by creating safe and inclusive public spaces.
- Provide relief to people suffering from the effects of the blockade that has severely impacted the living conditions and economic situations in the Gaza Strip.

Components

The project was implemented in four phases:
(1) Selection of the sites for intervention in the three neighborhoods of Al-Shoka, Beit Lahia, and Al-Zawayada.
(2) Organization of capacity-building sessions for local female architects and community representatives. Local councils and professionals were trained in using digital technologies to develop interactive municipal websites.
(3) Organization of community workshops, which were held in three locations across the Gaza Strip as follows:
- Al-Shoka workshops engaged 30 participants who used Minecraft to develop ideas for the community garden.
- Beit Lahia workshops, attracted 35 participants, primarily women and youth. The resulting garden design emphasized equity and inclusiveness, providing comfortable spaces and easy access for various groups.
- Al Zawayada workshops engaged with 42 participants. The resulting garden design prioritized protective measures and safety.

(4) Implementation and inauguration of the community public gardens. Al Shoka Community Garden was inaugurated in April 2018, followed by Al Shaimaa Community Garden in Beit Lahia in August 2018, and Al-Zawayada Community Garden in December 2018.



Fig. 3.6: The Beit Lahia after transformation into a vibrant community garden..

Project Scale and Location

The project involves small and medium-scale urban public gardens and spans over three neighborhoods in Gaza. The gardens are located in Al-Shoka (2,600 sqm), Beit Lahia (Al-Shaimaa neighborhood), and Al-Zawayada, areas characterized by marginalization and limited public infrastructure.

Project Main Stakeholders

Owner/Developer
UN-Habitat
UN Women

Consultant/Designer
Local Architects

Funder
Government of the Kingdom of Belgium

Contractor/Implementer
UN-Habitat
Palestinian Housing Council
AISHA Association for Women and Child Protection

Digital Tools for Inclusive Urban Design

The project pioneers the use of digital tools for participatory urban design in Gaza, promoting gender inclusivity and safety through the involvement of women and marginalized communities in the design process. It also relies on low-cost energy and water reduction technologies.

Capacity Building for Better Community Engagement

Local female architects and community representatives were trained in developing gender-inclusive, safe public spaces, while local councils were trained to use digital technologies to enhance municipal planning and communication with residents. The female architects were later engaged in the participatory design process of the public spaces. The project promotes sustainability by creating community-owned public spaces that are co-designed and maintained by the local population, incorporating environmental sustainability features like solar panels and energy-efficient lighting.

Urban Greening and Environmental Improvement

The inclusion of green spaces in the public gardens helps to improve environmental quality in the dense city of Gaza, where public green spaces are scarce, contributing to urban greening and providing shaded, safe areas for relaxation and recreation. The project aligns with broader sustainability goals by enhancing public space access, promoting gender equality, and incorporating sustainable design features such as solar-powered lighting and environmental protection measures.

* https://araburban.org/infohub/projects/?id=7901

Fig. 3.5: retrieved from: https://www.facebook.com/photo/?fbid=1334335133337506&set=pcb.1333671503403869

Fig. 3.6, blockbyblock/UNHABITAT, retrieved from: https://www.blockbyblock.org/projects/gazastrip

4 Building Urban Resilience to Climate Change and Transitioning to Green Economy

Mogadishu, Somalia
[2024 – ongoing]

Project Overview

This project focuses on building climate resilience in Somalia's urban areas, addressing vulnerabilities exacerbated by climate change, including floods, droughts, and extreme weather events. It focuses on improving urban planning and infrastructure in rapidly growing urban areas, especially in Mogadishu. It emphasizes building institutional capacity, implementing pilots based on nature-based solutions and "sponge city" concepts, and replicating the model across the country to manage long-term climate risks. The goal is to promote climate adaptation and reduce socio-economic disparities caused by climate crises.



Fig. 3.7: Empowering women and youth through local markets

Objectives

The project aims to:
- Develop and implement climate-resilient urban planning and infrastructure to mitigate the impacts of extreme weather events, such as floods and droughts, on Somalia's urban areas.
- Reduce the socio-economic consequences of climate change, particularly for marginalized groups like women, children, and displaced populations.
- Support urban centers in becoming more sustainable through effective planning and innovation while reducing exposure to climate risks.
- Strengthen multi-sectoral institutions, policies, and services to better adapt to and manage climate-related challenges.
- Facilitate the replication of effective climate resilience interventions across Somalia to foster long-term sustainability and governance.

Components

The project involves:
- Strengthening government and institutional capacities in climate change adaptation planning and programming through expanding knowledge transfer and strengthening policy frameworks to mainstream nature-based solutions for climate adaptation in Urban areas.
- Enhancing urban climate resilience to floods through improved NbS adoption and management.
- Leveraging sustainable finance through private sector investments.
- Information and knowledge management and dissemination to facilitate national and sub-level information exchange and scaling up.

Project Scale and Location

The project will focus on key cities that exhibit stability in political, economic and security contexts. These cities play a pivotal role in the country's urban population growth. The project interventions will take place in: Garowe, Galkacio, Bosasso, Hargeisa, Burco, Barbera, Dhusamareeb, Baladweyn, Jowhar, Baidoa, Hudur, Kismayo, Garbahaarey. The project includes interventions in designated areas of these cities to address issues of water, land management, and urban resilience.

Project Main Stakeholders

Owner/Developer (Public)
Ministry of Environment and Climate Change (MOECC)

Owner/Developer
UNDP

Consultant/Designer
UNDP

Funder
Federal Ministry of Municipalities
Federal Ministry of Public Works, Reconstruction, and Housing
Ministry of Environment and Climate Change
Somalia Joint Fund
UNDP
Africa Development Bank (AfDB)

Contractor/Implementer
UNDP
GEF Executing Agency

Community Engagement and Social Inclusion

The project prioritizes engaging grassroots organizations to build local capacities, advocate for vulnerable populations, and foster inclusive resilience using Nature-based Solutions (NbS). Stakeholder mapping ensures the active participation of women, displaced persons, and urban communities in planning and decision-making. Knowledge-sharing platforms will encourage collaboration and integrate diverse perspectives, enabling communities to actively participate in sustainable resource management and ecosystem-based disaster mitigation.

Sustainable Livelihoods and Economic Growth

Economic initiatives focus on generating green jobs and empowering women, youth, and internally displaced persons through entrepreneurship and MSME development. The project relies on innovative financial tools such as microloans, grants, and green bonds to support the adaptation of nature-based solutions for water management, sustainable agriculture, and urban resilience. By fostering public-private partnerships, it enhances economic recovery, promotes climate-smart business opportunities, and builds a sustainable urban economy.

Nature-Based Solutions and "Sponge City" Applications

To strengthen urban resilience, the project promotes NbS, such as sustainable land management, reforestation, and ecosystem services. It adopts "sponge city" concepts to allow more resilient water management, especially in relation to flood risks and the use of water for irrigation. It incorporates technologies like climate information systems (EW4ALL) and spatial planning tools to enable data-driven decision-making and minimize maladaptive practices. Partnerships across sectors focus on implementing green infrastructure and Payment for Ecosystem Services (PES), reducing environmental risks and supporting long-term climate adaptation.

* https://araburban.org/en/infohub/projects/?id=9762

Fig. 3.7: UNDP Somalia, retrieved from: https://www.adaptation-undp.org/projects/building-urban-resilience-and-transitioning-green-economy-somalia

B. Afforestation Initiatives

5 Forever Green- Afforestation Campaign

Manama, Bahrain
[2021 - Ongoing]

Project Overview

The Forever Green campaign is a national campaign in Bahrain for tree plantation and greening, as well as for the sustained development and restoration of the agriculture sector. The project focuses on planting large evergreen trees that are well-suited to Bahrain's climate, ensuring responsible water usage. It was initiated in October 2021 and is currently in its third phase.



Fig. 3.8: Plantation activities at Al Fateh corniche.

Objectives

The campaign aims to:
- Double the number of trees
- Quadruple the number of mangroves in Bahrain by 2035
- Align with the country's goals to achieve zero neutrality by 2060

Components

The campaign involves:
- Planting large evergreen trees. 49,000 trees and shrubs were planted in the first phase of the project. Over 50,000 trees and shrubs were planted in phase 2. It included multiple intervention sites such as parks, walkways, public transport stations, health centers, schools, car parks, coasts, and streets
- Greening of large public spaces, tree-lining of boulevards, as well as afforestation in commercial spaces in Manama city.
- Al Fateh corniche underwent a "landscape makeover." 180 poinciana, acacia, neem, ficus, and jatropha trees were planted at the eastern part of the corniche.
- An automatic irrigation network, water fountains, as well as approximately 800 trees and 1,500 evergreen plants were installed at Al Farouq junction.
- 23 hibiscus and 22 neem trees that were planted in a school.
- Afforestation of the Central Market.



Fig. 3.9: Participation of Al Hekma International School for the greening of Umm Al Hassam walkway.

Project Scale and Location

The campaign is a medium-scale afforestation initiative that covers 10 zones in the Southern Governorate, 6 in the Northern Governorate, 6 in Muharraq, and one in the Capital Governorate, primarily in Manama. In the city of Manama itself, five sites are part of the Forever Green Campaign. In the first phase, 27 sites were targeted for intervention, covering a total area of 73,000 sqm. The second phase, which began in 2022, included multiple intervention sites where planted trees covered a total area of 13,589 sqm across four governorates of Bahrain. Plantation was also done along the Zallaq Highway and King Faisal Highway. The campaign crossed its target of planting 140,000 trees across the country.

Project Main Stakeholders

Owner/Developer (Public)
The National Initiative for Agricultural Development (NIAD)

Funder
Bank of Bahrain and Kuwait (BBK)
Gulf International Bank (GIB)
SGS Bahrain

Contractor/Implementer
Fabrica promo and trading
Bahrain Natural Landscape
Gulf Fencing & Specialist Surfacing Est. W.L.L

Greening Collaborations

The Forever Green campaign worked with academic institutions such as Al Hekma International School for the greening of the Umm Al Hassam walkway. Through its multiple interventions, the campaign encourages collaboration between municipalities, private sector firms, and non-profit organizations.

Municipality Involvement

Some planting activities were undertaken in partnership with municipalities, and in some cases, they selected the types of trees to be planted that suit the existing climatic conditions.

Promoting Green Infrastructure and Urban Resilience

The campaign directly addresses desertification and urban heat island effects by increasing greenery and tree cover. It focuses on responsible water usage, and planting evergreen trees that are suited to Bahrain's climate. The campaign aims to enhance urban resilience through green infrastructure, reducing temperatures, and improving urban quality of life.

* https://araburban.org/infohub/projects/?id=3953

Fig. 3.8: retrieved from: https://www.gib.com/en/al-fateh-corniche-receives-landscape-makeover-through-forever-green-campaign

Fig. 3. 9: retrieved from: https://rb.gy/o3ddcd

6 Urban Landscaping Design and Beautification Project

Budaiya, Bahrain
[2015 - 2017]

Project Overview

Urban Landscaping Design and Beautification project in Bahrain is a nationwide project that aims to improve urban greening through public-private partnerships. Its Objectives are to provide landscape designs for four main highways, beautify main roads, add twenty hectares of new green space, and offer recommendations for enhancing urban landscape designs in the existing green areas.



Fig. 3.10: The parking lot at the Bahrain National Museum.

Objectives

The project aims to:
- Complete four main highway landscape designs.
- Beautify 10 kilometers of roads.
- Add 20 hectares of new green space.
- Offer recommendations for enhancing existing landscapes by 20 hectares.
- Support Bahrain International Garden Show (BIGS)

Components

The project includes designing and implementing landscapes for:
- Highway medians and junctions.
- Roundabouts.
- Public parks.
- Various green spaces and urban agriculture projects.



Fig. 3.11: Aerial view showing facilities and green spaces in the project.

Project Scale and Location

This nationwide project involves locations all across Bahrain, specifically targeting key highways, public parks, and agricultural areas. The project spans multiple areas, including 10 kilometers of beautified roads, 20 hectares of new green space, and the involvement of multiple highways and public spaces across Bahrain, ensuring extensive reach and impact.

Project Main Stakeholders

Owner/ Developer [Public]
Ministry of Works, Municipalities Affairs and Urban Planning

Owner/ Developer
Taiwan Technical Mission in the Kingdom of Bahrain

Funder
International Cooperation and Development Fund (Taiwan ICDF)

Contractor/ Implementer
Taiwan Technical Mission in the Kingdom of Bahrain
Ministry of Works, Municipalities Affairs and Urban Planning

Landscape Design and Execution

The project integrates strategic landscaping and urban greening solutions to improve urban public spaces. Design elements included technical support on plant selection, soil mixtures, and water management systems.

Enhancing Public Spaces

The project benefits local communities, tourists, and public institutions by improving urban living quality, creating green recreational spaces, and enhancing the overall urban landscape. It also contributes to environmental goals such as reducing the urban heat island effect, preserving local biodiversity, and increasing public awareness of sustainable urban agriculture.

Greening Urban Environments

The project promotes long-term sustainability through landscaping innovations and community engagement. It complements initiatives such as the Bahrain International Garden Show (BIGS) and supports projects like the Budaiya Experimental Nursery, ensuring Bahrain's urban landscapes are prepared for future growth and ecological challenges. The initiative aligns with Bahrain's vision for sustainable development through public-private partnerships. It integrates with the government's "Green Bahrain" Objectives, emphasizing urban agriculture, landscape design services, and beautification efforts to elevate the country's environmental and aesthetic standards.

* https://araburban.org/infohub/projects/?id=8490

Fig. 3.10 & 3.11, retrieved from: https://www.archnet.org/sites/751

7 One Comorian, One Tree

Moroni, Comoros
[2022 - ongoing]

Project Overview

"One Comorian, One Tree" is a reforestation operation within communities in the framework of the national campaign in Comoros. The project seeks to protect watersheds and accelerate the goals of the nationally determined contribution (NDC) in Comoros. It reflects Comoros' commitment to restoring its severely diminished forest cover and to fulfilling its climate pledges made during the 26th Conference of the Parties (COP 26) in Glasgow.



Fig. 3.12: UNDP representative helping a girl to plant a tree.

Objectives

The project aims to:
- Restore forest cover by planting over 613,000 trees.
- Enhance water access.
- Protect vulnerable ecosystems.
- Engage citizens in environmental responsibility while fulfilling Comoros' climate pledges.

Components

The project includes:
- Reforestation through planting 613,000 trees across 571 hectares on multiple islands, targeting degraded lands and vulnerable ecosystems to restore forest cover and biodiversity.
- Watershed protection to ensure sustainable water resource management, crucial for agriculture and local communities, while mitigating soil erosion and improving water security.



Fig. 3.13: A UN volunteer with UNDP Comoros distributing plants..

Project Scale and Location

The afforestation initiative is nationwide, covering major islands, with specific tree-planting targets for each island, spanning over 571 hectares. Key locations include Ngazidja Island (300 hectares), Ndzouani Island (167 hectares), and Mwali Island (40 hectares), where the project focuses on planting trees to restore forest cover and protect watersheds.

Project Main Stakeholders

Owner/ Developer (Public)
Ministry of Environment and Forests

Owner/ Developer (Private)
United Nations Development Programme (UNDP)

Consultant/ Designer
Ministry of Environment and Forests
United Nations Development Programme (UNDP)

Funder
Global Environment Facility (GEF)
Green Climate Fund (GCF)
Least Developed Countries Fund (LDCF)

Contractor/ Implementer
Ministry of Environment and Forests
United Nations Development Programme (UNDP)
Green Climate Fund (GCF)

Restoring Forest Cover and Enhancing Ecosystems

The project employs a ridge-to-reef approach, integrating reforestation with ecosystem management to protect watersheds and reduce soil erosion. By planting 613,000 trees, the initiative supports natural systems, improves water security, and strengthens climate resilience, benefiting vulnerable agricultural areas.

Engaging Communities for Lasting Change

The campaign engages the population, dependent on rain-fed agriculture, to safeguard livelihoods through environmental restoration. , The project fosters community resilience, biodiversity preservation, and carbon emissions reduction, by involving youth in tree-planting events and prioritizing vulnerable groups

Long-Term Environmental Benefits

By addressing deforestation and implementing nationwide reforestation, "One Comorian, One Tree" prepares Comoros to withstand climate change effects and integrates climate adaptation strategies into sustainable development planning.

* https://araburban.org/infohub/projects/?id=8556

Fig. 3. 12: UNDP, retrieved from: https://www.adaptation-undp.org/one-comorian-one-tree

Fig. 3. 13: UNV, 2020, retrieved from: https://www.unv.org/Success-stories/comoros-volunteers-are-leading-efforts-restore-nature-and-build-resilience

8 Djibouti City Beautification Project

Djibouti, Djibouti
[2023 – Ongoing]

Project Overview

The Djibouti City Beautification Project is an urban afforestation initiative established by Djibouti, the Capital of Djibouti. The project involves creating new green spaces by planting trees across different city areas.



Fig. 3.14: The launch of the Tree Planting Campaign in Djibouti City.

Objectives

The project aims to:
- Enhance the city's appearance and beauty by creating green spaces.
- Better mitigate the effects of climate change by planting trees that reduce greenhouse gas emissions.
- Enhance social well-being in a healthy and protected environment by preserving biodiversity and natural resources.

Components

The project includes:
- Planting in multiple locations with 500 trees planted in the city.
- Tree planting with a master plan layout supported by irrigation management.
- Plants, protective cages, and tricycles.
- Public awareness campaigns.



Fig. 3.15: Tree Planting in other cities as part of the National Program.

Project Scale and Location

The project is a city-wide afforestation initiative covering various city areas, with a focus on high-traffic zones, public spaces, and educational facilities. It is distributed in different locations including schools, public parks, and areas along the main streets of Djibouti City's three districts.

Project Main Stakeholders

Owner/Developer (Public)
Municipality of Djibouti
Ministry of Agriculture, Water, Fisheries, and Livestock

Consultant/Designer
Ministry of Agriculture, Water, Fisheries, and Livestock
Ministry of Housing

Funder
Government of Djibouti
Ministry of Agriculture, Water, Fisheries, and Livestock

Contractor/Implementer
Municipality of Djibouti
Ministry of Agriculture, Water, Fisheries, and Livestock

Community Engagement and Distributed Responsibilities

Engaging the community in the implementation phase ensured the planting process was participatory. The municipal policy consists of distributing a substantial number of trees to each resident of Djibouti City, encouraging everyone to work together to enhance the community's living environment. The project constitutes a meeting that was held at the national level by the Djibouti Prime Minister for the "Djibouti Tree Planting and Beautification Program." This meeting allocated the responsibilities among the different stakeholders (Ministries, municipality, and monitoring committee).

Capacity Development for Residents

The project included awareness campaigns led by the Ministry of Interior on the role of residents in preserving the planted trees.

Promoting Environmental Sustainability and Resilience

The selection of plantation sites was based on various criteria, including the location's need for shade, improvement of air quality, and preservation of green spaces. The project promotes urban livability through improved air quality, shaded public spaces, and enhanced biodiversity in public areas. It aims to mitigate climate change effects through tree planting, which reduces greenhouse gas emissions and urban heat. The project seeks to enhance urban resilience through green space development, providing both environmental and social benefits to residents.

* https://araburban.org/infohub/projects/?id=7982

Fig. 3. 14: retrieved from: https://www.lanation.dj/la-campagne-de-plantation-darbres-demarre-officiellement/

Fig. 3. 15: retrieved from: https://www.istockphoto.com/photo/djibouti-city-central-square-district-with-modern-complex-in-the-background-djibouti-gm2167827479-587874270

9 Million Oaks Afforestation Project

Erbil, Iraq
[2020 – Ongoing]

Project Overview

The Million Oaks project, an urban afforestation project in Erbil city, is a planting initiative established to respond to rapid urbanization and climate change. This is planned to be achieved through creating new green spaces and restoring the forests across the Kurdistan region of Iraq. This planting initiative is a pilot project of the 'Erbil 2030 Strategy' and sets out to become a role model for other cities in the region.



Fig. 3.16: Community engagement during the project implementation in the street..

Objectives

The project aims to:
- Improve the quality of life in Erbil City by increasing the natural forestation areas in the region.
- Promote climate resilience by leveraging the inherent abilities of trees to capture and purify air pollutants, and by preserving biodiversity and facilitating the creation of new habitats for diverse species.
- Contribute to an enhanced overall resilience of the city's ecosystem.

Components

The project involves:
- 315,000 oak trees as a first phase.
- Additional 700,000 trees are expected to be planted by the end of 2023. Of these, 80% are native oaks, and the remaining 20% are other varieties of species.
- A comprehensive management plan.
- Meticulous monitoring and irrigation to ensure the robust development of the oak trees.
- The project team is responsible for monitoring the plantation post-completion.

It also includes the following phases:
- Phase 1 (2020): planting of 1,500 indigenous oaks in Erbil's public spaces.
- Phase 2 (2021): 60,000 oaks planted along Erbil's 120m road in 10 days.
- Phase 3 (2022): Planted 180,000 oaks in just 9 days along the same route.
- Phase 4 (2023): Surpassed 300K trees planted overall.
- Phase 5 (2024): 420,000 trees will be planted



Fig. 3.17: Rendering of 120-meter street in Erbil, displaying what the area will look like once the planted trees have grown.

Project Scale and Location

The city-wide afforestation project includes multiple phases over several years, with one million trees expected to be planted across "65 football fields' worth" of urban space in Erbil. Planting activities are positioned across Erbil's public spaces and along key roads such as the 120-meter road.

Project Main Stakeholders

Owner/Developer (Public)
Kurdistan Regional Government

Owner/Developer
Hasar Organization
Rwanga Foundation

Consultant/Designer
Hasar Organization

Funder
SOWVITAL 2

Contractor/Implementer
Hasar Organization

Urban Forestry Management

Over a span of three years, the forest will undergo meticulous monitoring and irrigation to ensure the robust development of the oak trees. Once it reaches maturity, the forest is anticipated to achieve self-sustainability, offering a habitat for various species.

Community Awareness Participatory Urban Greening

The project promotes community awareness of climate resilience, sustainable greening and biodiversity, encouraging long-term care for trees and environmental education. The project has ensured that the planning process is participatory, by engaging the community in the implementation phase. Local residents participate in tree planting through awareness campaigns and neighborhood greening initiatives.

Sustainable Urban Afforestation

The afforestation project emphasizes self-sustaining green spaces once they mature, long-term monitoring, and the promotion of biodiversity through native species like indigenous oaks. The project uses trees to capture air pollutants, cool urban areas, and reduce heat island effects, contributing to climate resilience.

* https://araburban.org/infohub/projects/?id=6307

Fig. 3. 16: Hasar.org, retrieved from: https://hasar.org/millionoaks-erbil-urban-sustainability-300k-trees-planted/

Fig. 3. 17: MillionOaks, retrieved from: https://www.urbanet.info/erbil-oak-planting-climate-adaption/

10 National Afforestation Campaign

Baghdad, Iraq
[2024- Ongoing]

Project Overview

The National Afforestation Campaign project is an urban afforestation initiative in Baghdad City. The project involves creating new green spaces by planting more than 100,000 trees across different city areas. The initiative is part of a larger national campaign initiated by Iraq's Ministry of Agriculture, aiming at planting more than 5 million trees in different Iraqi regions.



Fig. 3.18: The launch of the Tree Planting Campaign in Baghdad City.

Objectives

The project aims to:
- Enhance Baghdad's urban landscape through greening.
- Improve the city's biodiversity
- Mitigate climate change effects by planting perennial trees that help reduce greenhouse gases and provide cooling.
- Promote social well-being by fostering a healthy urban environment.
- Strengthen the green belt around Baghdad and preserve its natural resources.

Components

The project includes:
- 101,000 trees were planted, including Acacia, palm trees, and eucalyptus.
- Integration of shrubs, seedlings, and a variety of green space Components across urban areas.
- Drip irrigation and fixed sprinklers, powered by solar energy to ensure sustainability.



Fig. 3.19: Baghdad cycling team participation in the Campaign.

Project Scale and Location

The city-wide urban afforestation project spans almost all areas of Baghdad, including schools, parks, streets, and residential areas, covering various urban and suburban zones such as schools, universities, parks, and streets.

Project Main Stakeholders

Owner/Developer (Public)
Mayoralty of Baghdad
Ministry of Agriculture

Consultant/Designer
Mayoralty of Baghdad

Funder
Mayoralty of Baghdad
Iraqi Government

Contractor/Implementer
Mayoralty of Baghdad

Public Engagement, Volunteering and Awareness Campaigns

A key feature of the project is its participatory approach, engaging community members, local civic organizations, and over 200 volunteer teams. The project also includes awareness campaigns led by the mayoralty of Baghdad. These campaigns educate residents about the role of green spaces in mitigating extreme heat and pollution while encouraging active participation in tree planting and maintenance. The goal is to foster a sense of community responsibility, motivating residents to contribute to a healthier, greener urban environment.

Irrigation Systems and Solar Energy

To ensure the long-term sustainability of the trees, the project employs advanced irrigation techniques, including drip irrigation systems and fixed sprinklers. In addition, solar-powered systems will be used to maintain these green spaces in a sustainable manner, further reducing the city's environmental footprint.

* https://araburban.org/en/infohub/projects/?id=9756

Fig. 3.18 & 3.19: retrieved from: https://www.facebook.com/photo/?fbid=1038986654942357&set=pcb.1038986848275671

11 Urban Micro-Lungs Initiative

Amman, Jordan
[2020 - 2021]

Project Overview

The Urban Micro-Lungs Initiative is a Green Infrastructure intervention that aims to establish new green spaces and urban forests in East Amman. The initiative adopted the Miyawaki Methodology for afforestation and implemented it as a pilot project. The initiative is part of the project titled 'Improving Living Conditions in Disadvantaged Areas in Amman (ILCA)', an urban regeneration project to introduce new green infrastructure in East Amman.



Fig. 3.20: Community participation in the plantation of Marka site, one of the project sites.

Objectives

The project aims to:
- Improve living conditions in dense and deprived urban areas by creating new green areas.
- Promote climate resilience and urban justice by addressing issues related to climate change.
- Strengthen municipalities by improving the capacity of the staff in this field.

Components

The project includes:
- Two sites for the creation of green infrastructure.
- Plantation of dense forests on the two chosen sites.
- Workshops and training sessions.
- Awareness campaigns.
- Field excursions, vegetation assessments, desk-based research.



Fig. 3.21: Plantation preparation in Marka forest.

Project Scale and Location

The small-scale afforestation initiative is created in dense and deprived urban areas. It involves two sites with an area of 100 to 250 m2 each.

Project Main Stakeholders

Owner/Developer (Public)
Greater Amman Municipality
Ministry of Environment

Owner/Developer
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Consultant/Designer
Tayyun Research Studio

Funder
German Federal Ministry for Economic development and Cooperation (BMZ)

Contractor/Implementer
Greater Amman Municipality
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
Tayyun Research Studio

The Miyawaki Methodology for Afforestation

The initiative involves the plantation of dense forests on the two chosen sites based on the Miyawaki Forestation Method that focuses on soil engineering, biomass construction, and the planting of climate-appropriate species.

Capacity Development and Awareness Campaigns

Workshops and training sessions were conducted to enhance the management and maintenance capacities of the municipality staff in the two Urban Micro-Lungs Project sites and integrate the Miyawaki method in urban landscape design across the city. In addition, awareness campaigns took place for both the residents and the local authorities focusing on the importance of green infrastructure for the city. This included site visits, workshops, and community engagement sessions.

Community Participation

The project was implemented in collaboration with residents and community members of all ages by encouraging them to participate in the transformation process of the selected areas through workshops, awareness campaigns, site visits, and planting events.

Promoting Sustainability in Disadvantaged Areas

By focusing on disadvantaged areas, the initiative has improved the urban environment and increased access to green spaces. The Urban afforestation also aimed to enhance air quality and climate resilience by promoting urban greening and reducing the heat island effect. Climate change mitigation is then addressed by strengthening urban resilience through green space creation.

* https://araburban.org/en/infohub/projects/?id=3981#_ednref22

Fig. 3.20, TAYYŪN Research Studio, retrieved from: https://www.instagram.com/tayyun.co/

Fig. 3.21, Lyse Mauvais for Mongabay, retrieved from: https://news.mongabay.com/2022/06/in-jordan-the-middle-easts-first-miyawaki-style-baby-forests-take-root/

12 Green Riyadh Project

Riyadh, Saudi Arabia
[2019 – Ongoing]

Project Overview

The Green Riyadh Project is a large-scale urban forestation initiative in Riyadh, and one of Riyadh's four wellbeing megaprojects. Launched by King Salman bin Abdulaziz in 2019, this project is set to become one of the largest urban forestation projects globally, with an estimated budget of $32 million.



Fig. 3.22: Street in Riyadh after greening.

Objectives

The project aims to:
- Transform Riyadh into a "green oasis" and one of the world's most livable cities.
- Increase the per capita share of green space from 1.7 sqm to 28 sqm, as well as reduce temperatures by up to 2°C.
- Align with the Objectives of Saudi Arabia's Vision 2030 as a pioneering development in urban sustainability and a step towards a carbon-neutral future.

Components

The project includes:
- Afforestation involving the planting of 7.5 million trees carried out along 387 neighborhood parks, 4,500 mosques, 4,515 schools, 4,500 governmental compounds, 4936 health facilities, and 148 square kilometers of valleys and tributaries.
- The development of a new water treatment network for irrigation, with a daily capacity of 1 million cubic meters.
- 545 square kilometers of green space, 1,204 kilometers of roads, and 43 city parks.
- Plant nurseries to serve the demand for saplings.
- Developing urban regulations to enable and enhance afforestation in public and private spaces.
- Awareness campaigns and events.



Fig. 3.23: Map shows all green areas in Riyadh City by 2030.

Project Scale and Location

The city-wide project covers 120 neighborhoods, making it one of the largest global urban greening projects. It is located primarily within Riyadh, across a variety of urban infrastructure, including roads, parks, mosques, schools, and health facilities.

Project Main Stakeholders

Owner/Developer (Public)
Royal Commission for Riyadh City (RCRC)

Consultant/Designer
Royal Commission for Riyadh City (RCRC)

Funder
Kingdom of Saudi Arabia

Contractor/Implementer
Royal Commission for Riyadh City (RCRC)

New Policy for Afforestation

On a policy level, the project is developing urban regulations to enable and enhance afforestation in public and private spaces.

Urban Forestation Techniques

The project advances afforestation techniques, including the development of nurseries, planting trees in facilities, and using a new water treatment network for irrigation.

Community Education and Engagement

The project is running community awareness campaigns and encouraging volunteer participation to engage and educate the public on tree planting benefits and maintenance efforts.

Promoting Environmental Sustainability and Resilience

The project aims to improve public spaces, increase social and psychological well-being, enhance livability, and community engagement through participation in the greening efforts. The project will reduce temperatures by up to 2°C, improve air quality, and promote environmental sustainability by increasing green cover. Trees help mitigate urban heat island effects by reducing temperatures and improving air quality, contributing to climate resilience.

* https://araburban.org/infohub/projects/?id=3728

Fig. 3.22 & 3.23: RCRC, retrieved from: https://www.rcrc.gov.sa/en/projects/green-riyadh-project/

C. Green Belts

13 The Green Belt of Algiers

Algiers, Algeria
[2016 - ongoing]

Project Overview

The Green Belt of Algiers is an urban greening initiative launched in 2016. It integrates green spaces in the form of Agro Parks and allotment gardens within the city, forming a green belt around the capital. The project is part of the broader Green Dam Initiative, a massive anti-desertification operation designed to restore ecological balance in pre-Saharan regions. The project also aligns with the Urban Management Plan for the Algiers Region, issued in 2010 and revised in 2015.



Fig. 3.24: Donyia Park, one of the Green Belt Parks.

Objectives

The project aims to:
- Restore the "green belt".
- Increase biodiversity.
- Prevent erosion.
- Enhance urban resilience in the city of algiers.

Components

The project includes:
- Reforested areas.
- Two types of green spaces: public gardens and agro-parks. It involves 23 agro-parks containing diverse agricultural trees such as oranges, loquats, and vineyards.
- Protected green zones.
- Planned reforestation projects.



Fig. 3.25: Map of the Green Belt of Algiers.

Project Scale and Location

A city-wide project aimed at covering multiple areas. The project creates a green belt or green buffer between Algiers city in the north and the desert in the south. The introduced green spaces are located throughout several urban and peri-urban areas around Algiers. Agro-Parks include the Kheraïssia Park, 3.72 km2, and Cheraga Park, 5.6 km2. The project involves rehabilitating and restoring damaged or destroyed ecosystems and restoring ecological connectivity.

Project Main Stakeholders

Owner/Developer (Public)
Local government/Municipality

Owner/Developer
Ministry of Agriculture and Rural Development

Funder
Algerian government

Contractor/Implementer
Direction of forests and green belt of Algiers

Collaborative Initiative

The project is led by the Ministry of Agriculture and Rural Development, in collaboration with regional authorities and municipalities. The funding of the project is a combination of national and regional public budgets. Non-financial contributions are made through the provision of land, labor, and expertise from both delegated state services and actively involved citizens. There is a focus on engaging local communities, including residents, non-profit organizations, and farmers, in activities such as tree planting and vegetation management activities. Residents also received public awareness campaigns.

Environmental Resilience Through Biodiversity

The project aims to reach environmental resilience through Biodiversity promotion via the creation of green zones, rehabilitation of damaged ecosystems, restoration of ecological connectivity, CO2 reduction, and climate change mitigation by creating green spaces that help absorb emissions and improve air quality. These initiatives align with broader anti-desertification goals under the Green Dam Initiative, which fights desertification and supports the ecological balance in pre-Saharan regions. By integrating Agro-Parks and public gardens into urban areas, the project aims to enhance social well-being through the provision of recreational spaces.

Potential Indirect Economic Activities

The establishment of Agro-Parks could potentially provide economic benefits by allowing local farmers to grow and sell produce, which would support the local economy indirectly. Besides, the improved environmental quality and green spaces could also enhance property values in the surrounding areas.

* https://araburban.org/infohub/projects/?id=7909

Fig. 3.24: retrieved from: https://www.shutterstock.com/image-photo/dounia-park-algiers-highway-2421208375
Fig. 3.25: retrieved from: https://shorturl.at/AAgPe

14 The Cairo Greenbelt

Cairo, Egypt
[2005- ongoing]

Project Overview

The Cairo Greenbelt Project is a large-scale initiative located in Greater Cairo, covering parts of the Cairo, Giza, and Qalyubia governorates. This ambitious project aims to create a greenbelt surrounding the capital, designed to combat air pollution and promote sustainable urban development. The project, initiated in 2005, is part of a broader environmental initiative aimed at protecting the city's ecosystem.



Fig. 3.26: Part of the implemented Greenbelt in 6th of October City, part of Greater Cairo.

Objectives

The project aims to:
- Combat air pollution and protect the city's ecosystem.
- Act as a windbreak against desert dust and reduce pollution.
- Efficiently use treated wastewater for irrigation.
- Create job opportunities and economic returns through timber cultivation.
- Enhance Cairo's urban sustainability.

Components

- 100-kilometer greenbelt around Greater Cairo.
- Approximately 500,000 trees were planted, including eucalyptus, casuarina, cypress, and acacia.
- Treated wastewater drip irrigation system sourced from Cairo's wastewater plants.
- The creation of maintenance jobs for young graduates to manage the project's sustainability.



Fig. 3.27: Distribution of designated Greenbelt regions surrounding Cairo.

Project Scale and Location

The project is a city-wide, multi-governorate project spanning Cairo, Giza, and Qalyubia, with further phases around major sites and new cities. It surrounds Greater Cairo, covering parts of Cairo, Giza, and Qalyubia governorates; it extends around 25 kilometers along both sides of the ring road.

Project Main Stakeholders

Owner/Developer (Public)
Ministry Of Environment

Consultant/Designer
ACSA

Funder
Egyptian Government
United Nations Environment Programme (UNEP)

Contractor/Implementer
Egyptian Environmental Affairs Agency
Ministry Of Environment

Fighting Desertification

The project seeks to improve air quality by reducing pollution, combat desertification, and create a green environment around Cairo. The planting of approximately half a million trees helps mitigate dust and air pollution, absorbs carbon dioxide, and promotes healthier living conditions for the local population. The green belt also serves as a natural barrier against dust storms from nearby deserts.

Resource Management

A key feature of the Cairo Greenbelt Project is the use of drip irrigation with treated wastewater, sourced from Cairo's wastewater treatment plants. This method ensures the efficient use of water resources, preventing waste and promoting water conservation. The greenbelt contributes to improved local water management and helps address challenges related to water scarcity.

Job Creation and Community Benefits

In addition to its environmental goals, the project creates maintenance jobs for young graduates, providing employment opportunities. The development of the greenbelt and tree plantations also contributes to improving the local ecosystem, benefiting the community by enhancing green spaces and reducing pollution.

* https://araburban.org/en/infohub/projects/?id=9758

Fig. 3.26: retrieved from: https://www.elwatannews.com/news/details/5299422
Fig. 3.27: retrieved from: https://www.facebook.com/photo.php?fbid=208167590955925&id=104414737997878&set=a.104660021306683

15 Tripoli 'Greenbelt'

Tripoli, Libya
[2008- 2010]

Project Overview

The Tripoli Green Belt Project is an urban development initiative located in Tripoli, Libya, addressing the pressing need for green and public spaces after 45 years of rapid, unplanned development. This project, which spans over 700 hectares, is designed to create a clear natural boundary around the city, distinctly separating the historic center from its peripheral areas and offering a diverse array of landscapes and activities.



Fig. 3.28: Aerial View the Green Belt development in Tripoli.

Objectives

The project aims to:
- Establish a natural boundary around Tripoli, creating a clear separation between the historic center and peripheral areas.
- Enhance urban living by increasing accessibility, promoting sustainable infrastructure, and improving the quality of life.
- Support biodiversity and provide recreational spaces for residents.

Components

The project includes:
- A large-scale park system that combines diverse landscapes and habitats to support local biodiversity and provide recreational spaces.
- The implementation of a Bus Rapid Transit (BRT) system to improve urban mobility, with stations designed to optimize accessibility to the city center.
- Reform and design the ring roads and pedestrianized spaces, including Martyrs Square, enhancing both connectivity and ease of access for pedestrians and cyclists in the green Belt effective area.
- Dedicated residential and recreational zones along the Green Belt, incorporating community spaces, parks, and green infrastructure to promote quality of life.



Fig. 3.29: Tripoli 'Inner Green Belt' master plan.

Project Scale and Location

The project is a city-wide project covering 7 million sqm around Tripoli, Libya, including natural, residential, and public spaces. It Surrounds Tripoli, distinctly separating the historic center from peripheral areas, incorporating key public spaces and residential areas along the belt.

Project Main Stakeholders

Owner/Developer (Public)
ODAC Organization for the Development of Administrative Centres

Owner/Developer
ECOU Engineering and consulting office for utilities

Consultant/Designer
JNC International
Gilles Clement
Coloco

Contractor/Implementer
ECOU Engineering and consulting office for utilities

Urban Transformation and Community Benefits

The project seeks to improve urban living by creating green spaces that enhance residents' well-being and environmental quality. The diverse landscapes support local biodiversity and provide recreational areas. The BRT system and revamped transport infrastructure also promote better urban mobility, while pedestrian and cyclist-friendly spaces improve accessibility.

Job Creation and Community Engagement

The green spaces are maintained by 700 workers, contributing to the project's long-term sustainability. Residential and recreational zones promote community engagement and foster an inclusive urban environment.

Water Management and Eco-friendly Practices

The project integrates sustainable practices, using 40,000 cubic meters of treated wastewater per day for irrigation, ensuring efficient water resource use. It also focuses on landscape restoration and ecological corridors to preserve natural habitats while accommodating urban growth.

* https://araburban.org/en/infohub/projects/?id=9753

Fig. 3.28 & 3.29: Coloco, retrieved from: https://www.coloco.org/projets/tripoli-green-belt-libye/

16 Ahl Misr Nile Walkway

Cairo, Egypt
[2019 – Ongoing]

Project Overview

The Ahl Misr Nile Walkway ('Walkway of the People of Egypt') is a riverfront revitalization project on the Nile River in Cairo Governorate. The project is a promenade equipped with multiple services and facilities, set to become a major recreational and touristic landmark, which aligns with Egypt's Vision 2030.



Fig. 3.30: The first phase of Ahl Misr walkway after construction.

Objectives

The project aims to:
- Enhance the quality of life for residents and visitors alike by offering close-up experiences of the nile.
- Increase greenery and improve the urban landscape along the nile.

Components

The project development plan consists of four phases:
- First Phase: Includes a two-level promenade equipped with 19 buildings including 62 shops, five cafeterias, five restaurants, a theater, and three garages.
- Second Phase: Comprises two sections; the first extends between Imbaba Bridge and Al-Sahel Bridge (1.3 km) and the second between Qasr El-Nile Bridge and 15 May Bridge (1.9 km). These sections are equipped with 19 new buildings divided into a floating restaurant, three cafeterias, and 63 shops, in addition to service buildings and theatres.
- Third Phase: Extend from Tahya Misr Bridge to Sahel Bridge (1.9 km), and from Qasr Al-Nil Bridge to Meridian Bridge (1.1 km).
- Fourth Phase: The government is in the process of designing a fourth project phase in Zamalek.

* https://araburban.org/infohub/projects/?id=3790

Fig. 3.30: retrieved from: https://www.alamy.com/stock-photo-the-promenade-along-the-nile-river-in-zamalek-an-affluent-district-20572146.html

Fig. 3.31: retrieved from: https://www.alamy.com/the-promenade-along-the-nile-river-in-zamalek-an-affluent-district-encompassing-the-northern-portion-of-gezira-island-in-cairo-egypt-image362031943.html



Fig. 3.31: The promenade along the Nile river with greenery and seating areas.

Project Scale and Location

The project is strategically located along the Nile Corniche from Imbaba Bridge to October Bridge, making it a focal point in Cairo's urban layout. It extends over 6 kilometers along the Nile, covering multiple phases from 15th May Bridge to Qasr El-Nile.

Project Main Stakeholders

Owner/Developer (Public)
Ministry of Housing's New Urban Communities Authority (NUCA)

Owner/Developer
City Edge Developments

Consultant/Designer
City Edge Developments
Armed Forces Engineering Authority

Funder
Ministry of Housing's New Urban Communities Authority (NUCA)

Contractor/Implementer
The Arab Contractors
EDECS

Eco-Friendly Transport and Green Spaces

The project focuses on integrating green spaces, and introduces physical activities like walking, jogging, and cycling, encouraging non-motorized transport contributing to traffic congestion reduction.

Community Engagement and Social Interaction

The project promotes community engagement, enhancing urban living for different income groups, while providing educational aspects through environmental and recreational features. The project improves public access to the Nile, promotes social interaction through the offered spaces, and several seating areas. This is designed in a way that serves all residents and tourists, regardless of age or ability.

Economic Development and Investment Opportunities

The walkway includes accessible pathways for residents and visitors, offering commercial areas, including kiosks, organized street vendors, in addition to restaurants and coffee shops. These services address users from different income categories.

Promoting Sustainable and Climate-Resilient Infrastructure

The project promotes green infrastructure, aims to reduce traffic through bike lanes, and creates green urban spaces to mitigate urban heat. It seeks to enhance urban resilience by providing public spaces that promote social interactions and green spaces, making the Nile an environmentally friendly space.

17 Shuwaikh Beach Development and Beautification Project

Kuwait, Kuwait
[2024 - ongoing]

Project Overview

The Shuwaikh Beach Development and Beautification Project focuses on a waterfront space in Kuwait City, featuring running tracks, recreational zones, and lush greenery. As per its prime position in the city, the project aims to enhance the quality of life for residents but also, due to its prime location in Kuwait's central areas, it contributes to the touristic attractiveness of the city.



Fig. 3.32: Construction workers on site.

Objectives

The project aims to:
- Create a vibrant recreational space.
- Elevate kuwait's status as a tourism and commercial hub.
- Provide well-designed public areas for locals and visitors, while also minimizing environmental impacts and supporting carbon neutrality.

Components

The Shuwaikh Beach Development and Beautification Project consists of four areas with diverse Components:
- Area 1: includes the project's recreation areas, commercial kiosks, and mosque restoration in addition to green spaces for outdoor activities and playgrounds.
- Area 2: includes an extended sandy beach with wooden benches.
- Area 3: includes a walled garden with green landscape with trees offering spacious shaded spaces for meditation and rest in tranquil settings.
- Area 4: includes wide green multipurpose spaces, the project's starting point, and an interactive checkers' game.



Fig. 3.33: A virtual image of the project final design.

Project Scale and Location

The Shuwaikh Beach Development is situated in a prime area of Kuwait City, it spans an area of 1.7 kilometers opposite to the Sheikh Jaber Al-Ahmad Cultural Centre, making it a key recreational and commercial destination within the city's central areas.

Project Main Stakeholders

Owner/Developer (Public)
Kuwait Municipality
Ministry of Public Works (MPW)
Ministry of State for Municipal Affairs

Consultant/Designer
PACE

Funder
National Bank of Kuwait (NKB)

Contractor/Implementer
PACE

Beachfront Design and Community Well-Being

Design features include green landscapes, shaded areas, recreational facilities, an extended sandy beach, and interactive elements such as a large checkers game. This creates a valuable space for outdoor activities, drawing both locals and international visitors to an improved and modernized urban waterfront.

A Focus on Climate Adaptation

By incorporating extensive greenery, shaded areas, and sustainable water management, the project seeks to promote climate adaptation in an arid environment.

* https://araburban.org/infohub/projects/?id=8489

Fig. 3.32: Reuters, retrieved from: https://www.zawya.com/en/business/travel-and-tourism/kuwaits-shuwaikh-beach-project-designs-ready-set-for-tendering-kn9kjwaz

Fig. 3.33: retrieved from: https://www.constructionweekonline.com/news/kuwait-launches-final-designs-for-1-7km-beach-project-set-for-tendering

18 Nouakchott Coastline Development, Mauritania

Nouakchott, Mauritania
[2018- Ongoing]

Project Overview

The Nouakchott Coastline Development Project focuses on protecting and enhancing the coastline of Nouakchott, the capital of Mauritania, located on the shores of the Atlantic Ocean. This project addresses the city's unique challenges, as Nouakchott is highly vulnerable to climate change effects, including erosion, flooding, and biodiversity loss. The project includes measures to strengthen the natural dune cordon, improve urban planning, and foster socio-economic development in the region.

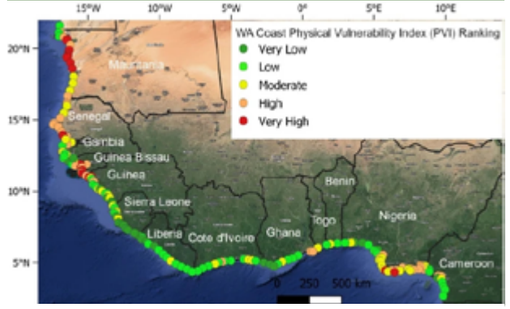

Fig. 3.34: The coastal region lacks the main necessaries of infrastructure and desertification spreading over the city.

Objectives

The project aims to:
- Protect Nouakchott from submersion, erosion, and flooding through natural dune restoration.
- Limit urban sprawl and integrate the city with the coastline for sustainable growth.
- Foster economic opportunities, enhance quality of life, and promote biodiversity conservation.

Components

The project involves:
- Restored dune cordon to protect against flooding and erosion over 12 kilometers.
- 60 hectares of parks and recreational spaces for public use.
- Designated areas for biodiversity conservation and ecological education.
- Business hubs and tourism spaces to stimulate economic growth.

* https://araburban.org/en/infohub/projects/?id=9760

Fig. 3.34: retrieved from: https://www.nature.com/articles/s41598-023-48612-5

Fig. 3.35: retrieved from: https://shorturl.at/9VWDs



Fig. 3.35: Fishing Village on Nouakchott coast.

Project Scale and Location

The project is a large-scale coastal redevelopment located at the Atlantic coastal zone of Nouakchott. It covers Nouakchott's extensive coastal zone, reducing urban sprawl and improving coastal accessibility.

Project Main Stakeholders

Owner/Developer (Public)
Government of Mauritania

Owner/Developer
Meridiam

Consultant/Designer
UMDF (Urban Municipal Development Fund)

Funder
TURF – IMIF fund
The Rockefeller Foundation
The United Nations Capital Development Fund (UNCDF)

Contractor/Implementer
Société d'Aménagement du Littoral de Nouakchott (SALN)

Climate-Resilient Design

Key measures include reinforcing the natural dune cordon to mitigate erosion and flooding, sustainable construction using local materials like native plants, and incorporating advanced water management systems. Renewable energy solutions are being explored to ensure eco-friendly coastal infrastructure. The project follows a phased approach, starting with critical dune restoration and urban integration, and progressing toward economic and biodiversity goals.

Safeguarding Communities and Ecosystems

The project protects 75,000 residents in vulnerable areas through flood mitigation while creating economic opportunities via vegetable farming, plant nurseries, and local businesses. It includes recreational spaces and biodiversity conservation zones to restore native flora and fauna, improving quality of life and ecological balance.

Building an Inclusive Coastal Hub

Eco-friendly strategies, such as natural materials for dune reinforcement, renewable energy integration, and resource-efficient water management, ensure long-term sustainability. The project envisions a resilient, inclusive coastal hub that promotes socio-economic growth while safeguarding against climate risks and enhancing urban and environmental resilience. The project aligns with Mauritania's strategy for the Sustainable Development Goals (SDGs), specifically targeting SDG 13 (Climate Action), SDG 11 (Sustainable Cities), SDG 9 (Resilient Infrastructure), and SDG 8 (Decent Work and Economic Growth). Governance ensures inclusivity, resilience, and adherence to international sustainability standards.

19 The Maritime Promenade of Hassan II Mosque

Casablanca, Morocco
[2017 – Ongoing]

Project Overview

The Maritime Promenade of Hassan II Mosque is a seaside development project in Casablanca, Morocco. This project is part of a larger initiative to upgrade the Casablanca Settat region's coastline, which includes five waterfront sections: Al Hank, Aïn Sebaâ, Dar Bouazza, Mohammédia, and Aïn Diab. It also aligns with the Greater Casablanca Development Plan (2015-2020).



Fig. 3.36: The Maritime Promenade with greenery and seating areas.

Objectives

The project aims to:
- Enhance the quality of life for residents by establishing a public space devoted to recreation and entertainment.
- Foster social cohesion by creating a platform that facilitates interactions and serves as a communal gathering place for all Casablanca residents.
- Boost the city's appeal to tourists, thereby strengthening its position as a desirable destination.

Components

The project is divided into three main zones:
(1) The lookout panoramic zone: An Agora and platform for hosting events. Pedestrian walkways integrated with the plazas of the Hassan II Mosque.
(2) The recreational zone: Shaded green spaces, featuring low-maintenance plant species. Children's playgrounds and sports areas. Integrated trails for joggers, walkers, and cyclists. Rest areas and meeting points.
(3) The cultural zone: A dedicated space with kiosks for selling handicrafts.
The project also includes:
- A commercial area for restaurants and coffee shops.
- An underground parking facility with 1,000 spaces.
- A modern LED lighting and an efficient water management system for irrigation.



Fig. 3.37: The view of Hassan II Mosque Maritime Promenade.

Project Scale and Location

The medium-scale project is located along the Casablanca-Anfa Districts, extending from the Hassan II Mosque to El Hank Point, providing easy access to the seafront. The promenade spans 1.5 kilometers along the coastline, covering an area of 130,000 sqm.

Project Main Stakeholders

Owner/Developer (Public)
Municipality of Casablanca
Casa Aménagement

Consultant/Designer
Lemay

Funder
Ministry of Interior of Morocco
Municipality of Casablanca

Contractor/Implementer
Casa Aménagement39

Green And Sustainable Technologies

The project incorporates modern LED lighting and efficient water management systems for irrigation. It uses low-maintenance plant species adapted to local climate conditions, integrated pedestrian walkways, and bike paths for easy and more sustainable mobility.

Better Quality of Life and Social Cohesion

The project provides public spaces for recreation, enhances social interaction, and promotes physical activities such as jogging, walking, and cycling. The promenade includes accessible walkways, meeting points, playgrounds, and sports facilities, designed to cater to families, tourists, and athletes. The project's facilities integrate cultural elements with handicraft kiosks and Agora spaces for public events, promoting local culture and craftsmanship.

Promoting Sustainable Urban Coastal Development

The project promotes sustainability through water-efficient irrigation systems, eco-friendly lighting and recreational activities along the coastal line, and green spaces that improve the urban environment. The project features water-efficient systems, promotes green spaces aiming to mitigate urban heat, and supports climate resilience by enhancing the coastal environment.

* https://araburban.org/infohub/projects/?id=7768

Fig. 3.36, retrieved from: https://www.istockphoto.com/photo/hassan-ii-mosque-maritime-promenade-casablanca-morocco-gm1793383804-547921496

Fig. 3.37, retrieved from: https://www.istockphoto.com/photo/hassan-ii-mosque-maritime-promenade-casablanca-morocco-gm1782914902-547029425

20 "Humanizing the City" Approach, the Pilot of Tahlia Street Revitalization

Riyadh, Saudi Arabia
[2004 - 2004]

Project Overview

In the early 2000s, the Riyadh municipality, Saudi Arabia, introduced an initiative titled 'Humanizing the City', which aimed to foster a healthy lifestyle by focusing on the 'human dimension' of urban spaces. Tahlia Street (officially Prince Muhammad bin Abdulaziz Street), was the first pilot for this approach. The renovation focused on the remodeling of the street urban design and the introduction of greenery to make it pedestrian-friendly. The pilot led later on to the transformation of 61 streets in the city of Riyadh.



Fig. 3.38: Tahlia Street trees aligning car route with on street parking.

Objectives

The project aims to:
- Transform streets into a pedestrian-friendly, socially interactive space while enhancing safety and accessibility.
- Reduce traffic accidents and improve urban aesthetics.

Components

The pilot project in Tahlia includes:
- Widened sidewalks with 40m out of the total 60m right of way allocated for pedestrian activity.
- Green medians and street trees.
- Signal prioritization.
- Speed tables, safe pedestrian crossings and colorful pavement.
- On-street parking.
- Specific urban furniture including unique lighting.

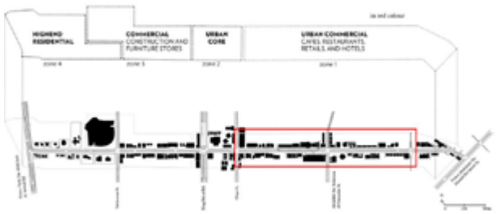

Fig. 3.39: Tahlia Street zones and land uses.

Project Scale and Location

The pilot project is a medium-scale urban greening redevelopment project, located in the north of Riyadh, previously a 5-kilometer 3-lane road with high-speed traffic and limited pedestrian space, resulting in numerous accidents and minimal walkability. It is redesigned with 40 meters of the 60-meter right-of-way dedicated to pedestrian activity. The "Humanizing the city" approach is a city-wide initiative.

Project Main Stakeholders

Owner/Developer (Public)
Arriyadh Development Authority (ADA)

Consultant/Designer
Omrania

Funder
Arriyadh Development Authority (ADA)

Contractor/Implementer
Manwa Trading and Contracting Company

Enhancing Pedestrian Safety and Visual Appeal

Key interventions include the use of speed tables, signal prioritization, and safe pedestrian crossings to reduce traffic accidents. The street features colorful striped pavement, unique lighting fixtures, and on-street parking to support retail spaces, while also planting trees for shade and aesthetic value.

A Hub for Community Interaction

Tahlia Street has become a vibrant space for Riyadh's residents, fostering social interaction and promoting a healthy lifestyle. Its improved pedestrian infrastructure attracts diverse users. Revitalized storefronts supported by on-street parking boost economic activity, while safety and accessibility enhancements strengthen the street's role as a resilient urban hub.

Street-Level Greening and Walkability

The project contributes to sustainability by prioritizing pedestrian-friendly spaces and incorporating green infrastructure. The introduction of trees and green medians enhances the urban environment and reduces heat in an arid-climate city.

* https://araburban.org/infohub/projects/?id=6409

Fig. 3.38: retrieved from: https://www.shutterstock.com/image-photo/light-traffic-on-tahlia-street-early-1078753298

Fig. 3.39: retrieved from: https://www.researchgate.net/publication/345903896_The_Characteristics_of_Livable_Streets_A_Study_of_Physical_Aspects_of_two_Streets_in_Riyadh

21 Sports Boulevard

Riyadh, Saudi Arabia
[2019 - Ongoing]

Project Overview

The Sports Boulevard is located in Riyadh, Saudi Arabia, and has world-leading sporting, cultural, and entertainment facilities. The project aims to transform the capital into one of the world's most livable cities by creating the world's largest linear green park. The Sports Boulevard is one of the development projects within Saudi Vision 2030, which aims to diversify the Kingdom's economy. It is also a key component of the 'Quality of Life' Programme outlined in this Vision.

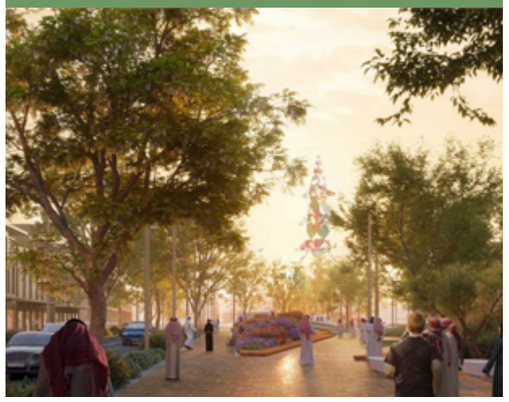

Fig. 3.40: 3D view of the Urban Wadi District of the Sports Boulevard Project.

Objectives

The project aims to:
- Promote a healthy lifestyle among residents and visitors.
- Encourage physical exercise and active participation in various sports activities.
- Enhance the quality of the built environment through a wide range of green spaces and accessible public areas in the city.

Components

The project includes:
- A master plan of the boulevard that involves eight districts:
- Hanifah Valley Zone includes routes for cyclists, pedestrians, and horse riders. This zone includes the natural reserve, seven stops along the valley, a bike maintenance center, and various leisure and retail shops.
- The Arts District includes cultural, art, and recreational facilities, including museums, libraries, and conference halls, pedestrian, cycling, horse-riding paths and spaces for investment opportunities.
- Urban Wadi Zone includes a water canal, green spaces, pedestrian and bike paths, and potential investment spaces.
- Entertainment District includes a viaduct for professional cyclists, an at-grade track for amateurs, and various entertainment venues, including theaters, cinemas, and event sites, parks and gardens with cooling systems alongside business, residential, and commercial areas for potential investors.
- Athletics District includes 60 sports facilities, including 16 football pitches, 18 covered courts for basketball and tennis, 12 courts for volleyball, and a venue for skiing.
- The Environmental Zone includes cycling routes, pedestrian and jogging tracks connecting to nearby neighborhoods, educational centers, residential complexes, retail outlets, and organic food production and seed development facilities.
- Al Sulai Valley Zone includes routes for professional cycling, horse riding, and pedestrian pathways, as well as 15 stations with amenities such as coffee shops, retail outlets, a bike maintenance center, picnicking and camping areas.
- Red Sand Park involves a rural resort, a zoo, a cycling track, professional cycling paths, an equestrian center, and diverse recreational facilities, including a visitor center and rest areas for cyclists.

Project Scale and Location

The large-scale urban park spans 135 km across Riyadh, passing through multiple districts and covering 4.4 million sqm of public and private space. The project is located in Riyadh, linking Hanifah Valley in the West to Al Sulai Valley in the East, passing through various urban and cultural districts.

Project Main Stakeholders

Owner/Developer (Public)
Sports Boulevard Foundation

Owner/Developer
Ajdan Real Estate Development
Al Bilad Investment Fund

Consultant/Designer
Coen and partners

Funder
Sports Boulevard Real Estate Fund

Contractor/Implementer
Sports Boulevard Foundation

Technology-Driven Lifestyle

The project integrates urban development, environmental conservation, and sporting activities into a cohesive master plan. It incorporates smart technologies like virtual reality (VR) to promote lifestyle changes and educate the public.

Enhancing Knowledge Transfer and Urban Health

The project includes educational centers for environmental sustainability, supporting knowledge transfer and capacity building in green practices and urban health.

Promoting Inclusivity

Residents of Riyadh, especially those within walking distance, will have access to the Sports Boulevard, fostering physical activity and engagement in cultural events. The boulevard includes diverse facilities for all ages and fitness levels, supporting inclusivity through a wide range of recreational, cultural, and sporting opportunities. The project promotes physical health and well-being by encouraging active lifestyles and providing accessible public spaces for recreation and seeks to enhance urban livability and quality of life.

Environmental Conservation and Resilience

The project seeks environmental sustainability through tree planting, green space creation, and sustainable transportation (i.e., walking, cycling, etc.). Planting 170,000 trees, contributes to Saudi Vision 2030's sustainability goals of achieving net-zero carbon emissions by 2060, reducing the urban heat island effect and improving air quality.

* https://araburban.org/infohub/projects/?id=7590

Fig. 3.40: RCRC, retrieved from: https://www.flickr.com/photos/200064013@N07/53526462018/in/photostream/

22 Corniche Park

Abu Dhabi, United Arab Emirates
[1990 – 2010]

Project Overview

The Abu Dhabi Corniche is a waterfront promenade stretching down the coast. It has a recreational and touristic public space with parks that blend modern and natural elements. It aims to create a distinctive and vibrant tourist attraction, by enhancing its connection to the beach, serving as a focal point for the city's skyline and reinforcing its status as a major landmark. Following Abu Dhabi 2030 urban masterplan, the project aims to create accessible, green public spaces that serve all demographics and promote economic diversity.



Fig. 3.41: 3D aerial of the Corniche, facing Lulu Island.

Objectives

The project aims to:
- Revamp corniche as a premier waterfront destination blending leisure, recreation, and cultural experiences.
- Enhance its connection to the beach, make it a focal point for the city's skyline, and reinforce its status as a major landmark.
- Promote urban livability, inclusiveness, and economic diversity.

Components

The project includes:
- A Beach, cycle paths, watersports facilities, including jet ski and boat rentals, food and drink options, children's playgrounds, entertainment areas like the Family Park.
- A commercial center, mix-use and residential developments like Heritage Village, and also Al Lulu Island.

* https://araburban.org/infohub/projects/?id=8578

Fig. 3.41 & 3.42: retrieved from: https://www.landinc.ca/abudhabicorniche

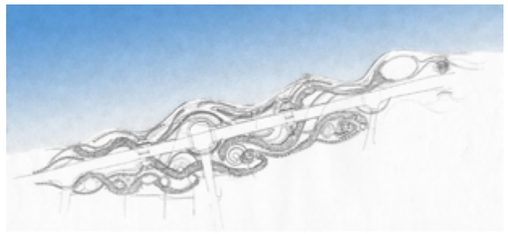

Fig. 3.42: Waterfront Master Plan and landscape design of the Corniche.

Project Scale and Location

The Corniche stretches 8 kilometers. It is located in Abu Dhabi's northwest coast, running from Emirates Palace Hotel to the fish market. It is easily accessible from various parts of the city, particularly close to the neighborhoods of Al Khalidiya, Al Bateen, and the Tourist Club Area (Al Zahiyah).

Project Main Stakeholders

Owner/Developer (Public)
Department of Urban Planning and Municipalities (DUPM)
Abu Dhabi Urban Planning Council (UPC)

Consultant/Designer
Martha Schwartz Partners (MSP)
Brune Jatsch Partners
Parsons International
LANDinc

Funder
Department of Urban Planning and Municipalities (DUPM)
International Capital Trading (ICT)
Abu Dhabi Commercial Bank (ADCB)
National Bank of Abu Dhabi (NBAD)
First Gulf Bank (FGB)
National Bank of Dubai (NBD)

Contractor/Implementer
Miral Asset Management
National Marine Dredging Company (NMDC)

Historical Development and Phased Construction

The Corniche's development dates back to the early 1960s, evolving from a small harbor to a major urban attraction. Key stages of construction took place in the 1970s and 1980s, with further expansions in the late 1990s and early 2000s, transitioning from a harbor to a municipal area. Significant milestones include the land reclamation and the creation of parks, walkways, and beaches aimed at attracting international tourism.

Master Plan and Strategic Development

The Corniche development follows the Abu Dhabi 2030 urban master plan, aiming to create accessible, green public spaces that promote inclusivity and economic diversity. The project involved extensive planning, stakeholder collaboration, and the implementation of urban planning regulations to enhance livability.

Reclamation and Infrastructure Enhancements

Significant infrastructure improvements and land reclamation projects have been integral to the Corniche's transformation, with 800,000 sqm of land reclaimed between 2001 and 2005. These interventions included the construction of a 2-kilometer-long artificial beach, parks, and recreational areas.

E. Urban Forest

23 Bouskoura-Merchich Forest Development Project

Casablanca, Morocco
[2015 - Ongoing]

Project Overview

The Bouskoura-Merchich Forest Project is a landscaping and recreational development of the Bouskoura-Merchich Forest in the Casablanca suburbs. The project consists of rehabilitating the forest and creating equipped recreational public spaces. Known as one of Casablanca's green lungs, the forest covers an area of 29.92 square kilometers. It is predominantly covered with eucalyptus trees, reaching a total of 11.87 square kilometers, and contributes to forestry operations. The forest development project is part of the Greater Casablanca Development Plan 2014-2020 (PDGC).



Fig. 3.43: Aerial view of Bouskoura Forest.

Objectives

The project aims to:
- rehabilitate the Bouskoura-Merchich Forest.
- create a healthy and secure environment for visitors and forest users, meeting their growing needs for relaxation and recreational spaces.
- ensure the sustainable management of the forest.

Components

The forest is divided into four zones:
- The Little Canton (the active forest) includes four playgrounds comprising 27 units covering 7,483 sqm, a reception area, 17.2 kilometers of pedestrian and bicycle tracks, a restaurant, eight sanitary blocks, an 800-meter pathway, and five access doors.
- The Laboratory Forest features a playground, a house of ecology and ecosystems (8 buildings), a house of agriculture, an ecological garden, two reception areas, and sanitary facilities.
- The Forest of Discovery contains ten tree shelters, a sensory path, a recreational clearing, two reception areas, sanitary facilities, a rest area, and a playground.
- The Young Forest includes a lookout tower, circuits and equipment, an adventure park, and the house of the big forest.
- The project also includes:
- The development of the Royal Gendarmerie's equestrian division and three brigades: the Dog Brigade, the Bicycle Brigade for the Royal Gendarmerie, and the Teams Brigade for the Auxiliary Forces.

* https://araburban.org/infohub/projects/?id=7686

Fig. 3.43 & 3.44: retrieved from: https://commons.wikimedia.org/w/index.php?search=bouskoura&title=Special%3AMediaSearch&type=image



Fig. 3.44: A view inside the woods of the forest.

Project Scale and Location

The large-scale urban green redevelopment project covers 29.92 million sqm, making it one of Casablanca's most significant green spaces. Bouskoura-Merchich Forest is located in the Casablanca suburbs, approximately 20 kilometers from the city center.

Project Main Stakeholders

Owner/Developer (Public)
High Commission for Water and Forests and the Fight Against Desertification

Consultant/Designer
Carey Duncan
Fadel El Guerraoui
Arep ville

Funder
Ministry of Interior (DGCL)
High Commission for Water and Forests and the Fight Against Desertification
Casablanca-Settat region

Contractor/Implementer
Casa Aménagement

Ecological Infrastructure Development

The project involves the development of bicycle and pedestrian tracks, sensory paths, playgrounds, ecological gardens, and installation of amenities like sanitary facilities and reception areas.

Educational and Ecological Awareness

Awareness campaigns and educational elements such as houses of ecology and agriculture and the Laboratory Forest are introduced to educate the public and raise awareness about the importance of forest ecosystems.

Inclusive Public Space

The forest's recreational and ecological areas aim to attract visitors from the city and surrounding neighborhoods, including individuals, residents, and families seeking relaxation and play areas for children. The project also seeks to attract athletes, especially cyclists and runners, due to the presence of pedestrian and bicycle tracks.

Improved Quality of Life

The project promotes physical activities like walking, cycling, and playing, and increasing green spaces, which contribute to improving the living conditions of residents.

Preserving Forest Ecosystems and Climate Resilience

The project promotes sustainable management of the forest ecosystem, balancing the need for public access and recreational uses with ecological conservation. It aims to preserve the forest ecosystem, enhance biodiversity, and promote sustainable forest development. By preserving forest ecosystems and increasing green spaces, the project aims to contribute to carbon sequestration, cooling urban areas, and improving air quality. It also seeks to enhance urban resilience by maintaining a significant green area within proximity to the city, while providing ecological and recreational benefits.

24 Al Agba Urban Forest

Tunis, Tunisia
[2018 - 2019]

Project Overview

Al Agba Forest is the first urban forest for recreation in Tunis City. The initiative involves planting 0.03 square kilometers in a rapidly growing area of Tunis agglomeration. The project is part of the National Forest Conservation Program, a strategy led by the Tunisian authorities to preserve the country's forest wealth.



Fig. 3.45: Sales point for local products by rural women.

Objectives

The project aims to:
- Improve residents' quality of life by creating a recreational green space for relaxation and outdoor activities.
- Preserve the environment by creating an "urban lung" that decreases pollution and minimizes the effects of urban density in the capital.

Components

The project includes:
- A "wellness trail"
- Sales points reserved for rural women to sell their local products.
- Eco-friendly cabins.
- Wooden rest facilities.
- Fence installation.
- 30 solar-powered lighting points.



Fig. 3.46: A view inside Al Agba Urban Forest.

Project Scale and Location

The afforestation project is located in El Agba, within the El Hraïria District of Tunis Governorate. It covers a surface of 30,000 sqm. The forest serves around 300,000 residents of nearby areas, providing a recreational and green space for residents and visitors.

Renewable Energy and Nature-Based Solutions

The forest incorporates renewable energy solutions like solar-powered lighting and eco-friendly cabins, with measures to protect the natural environment, including preventing soil erosion and filtering pollutants through vegetation.

Project Main Stakeholders

Owner/Developer (Public)
Regional Commission for Agricultural Development in Tunis (CRDA)
Ministry of Agriculture, Water Resources, and Fisheries

Funder
Regional Commission for Agricultural Development in Tunis (CRDA)

Contractor/Implementer
Regional Commission for Agricultural Development in Tunis (CRDA)
Tunis Governorate

Community Engagement to Preserve the Forest

The project promotes a participatory approach, engaging local residents, especially women, in maintaining the forest. Community consultations are conducted for managing the forest sustainably. The forest is accessible to residents of all ages and backgrounds ensuring that it remains a peaceful, inclusive space for recreation and relaxation.

Improving Women's Livelihoods

The project provides opportunities for local women to sell products through dedicated sales points, as part of a solidarity economy initiative.

Reducing Pollution and Mitigating Climate Change

The project contributes to national environmental goals by preserving forested areas, promoting renewable energy use, ensuring community-led initiatives to secure long-term sustainability and supporting eco-friendly urban development. The forest helps mitigate climate change by reducing urban pollution, acting as an urban lung, and preventing soil erosion, filtering pollutants, while also supporting water conservation in nearby watersheds.

* https://araburban.org/infohub/projects/?id=7852

Fig. 3.45 & 3.46: retrieved from: https://tunisie.co/article/11651/region/tunis/une-foret-urbaine-agba-555017

F. Urban Park's Development and Management

25 Dounya Park

Algiers, Algeria
[2011- 2023]

Project Overview

The Dounya Park is a development initiative in the Dely Ibrahim neighborhood in Algiers. The project focuses on the creation of a leisure and educational garden called the Andalusian Garden of Spain, as part of a broader environmental initiative aimed at preserving and enhancing Algeria's natural heritage. The project also aims to improve the livelihoods of the local population through productive initiatives in renewable energy research, water resource management, and agricultural development



Fig. 3.47: A view to the lake inside the park.

Objectives

The project aims to:
- Showcase Algeria's environmental diversity and preserve natural heritage.
- Strengthen cultural and institutional cooperation between Algeria and Spain.
- Promote economic and social development.
- Raise awareness on biodiversity, sustainable development, and food sovereignty.
- Enhance local livelihoods via renewable energy, water, and agriculture initiatives.

Components

The project includes:
- A 7 hectares green space, designed as a modern reinterpretation of a historic Andalusian Garden, with a promenade bordered by a water channel for both aesthetic and irrigation purposes.
- An 18-hole, fully equipped golf course, enhancing leisure activities for visitors.
- Residential and recreational areas, including hotels, offices, and retail spaces for community and economic development.
- Spaces for leisure and education, with multifunctional areas dedicated to the conservation of endangered flora, educational programs, and energy-saving installations.
- An olive and cork-oak forest alongside other Mediterranean crops, aimed at reviving traditional agricultural practices.
- Renewable energy installations and environmentally-friendly methods focused on water resource management and sustainability throughout the park.



Fig. 3.48: A view showing green spaces of Dounya Park.

Project Scale and Location

The project is part of an 8 million sqm development, with 630 hectares for the national park and 170 hectares for residential and recreational uses. It is located in Dely Ibrahim neighborhood in Algiers.

Project Main Stakeholders

Owner/Developer (Public)
The Company of the Parks of Algiers

Owner/Developer
Emirates International Investment Company LLC | EIIC

Consultant/Designer
Dar Design
Teresa Galí (Architecture and Agronomy Studio)
Manuel Ocaña

Funder
Algerian Ministry Environment and Landing Management
MED-O-MED
AECID (Spanish Agency of International Cooperation for Development)

Contractor/Implementer
Algerian Ministry Environment and Landing Management

Agricultural and Environmental Focus

The park includes an olive and cork-oak forest alongside other Mediterranean crops, which aims to revive traditional agricultural practices. This component reflects the project's focus on improving local agricultural knowledge.

Water and Energy Resource Management

Dounya Park integrates water resource management and renewable energy installations, with a focus on sustainable practices. These installations are part of the park's broader environmental sustainability Objectives.

Social and Educational Functions

The park includes spaces dedicated to leisure and education, with multifunctional areas focused on the conservation of endangered flora and informative energy-saving installations. These elements aim to raise awareness about environmental conservation and sustainable practices among visitors and the local community.

* https://araburban.org/en/infohub/projects/?id=9757

Fig. 3.47 & 3.48: retrieved from: https://commons.wikimedia.org/w/index.php?search=dounia+park&title=Special%3AMediaSearch&type=image

26 Rome Park Project

Djibouti, Djibouti
[2019 - 2019]

Project Overview

Rome Park project is a recreational urban park located in Djibouti City, the capital of Djibouti. It serves as a public space for residents, offering a variety of activities dedicated to both children's and adults' recreation. The project is part of the "Djibouti, Child-Friendly City" initiative, initiated and launched by the City of Djibouti in partnership with the United Nations Children's Fund (UNICEF), which aims to foster children's growth and well-being.



Fig. 3.49: Children's play area in the park.

Objectives

The project aims to:
- Enhance the livability of residents, especially children, by establishing a modern and secure space devoted to recreation and entertainment.
- Improve the sense of belonging to the neighborhood and wider community by creating an accessible and inclusive gathering place for all that maintains their socio-spatial practices.
- Enhance locals' wellbeing by providing a place that relieves stress and encourages physical activities.

Components

The project includes:
- Children's play areas (Climbing towers, slides, swings).
- Football and basketball courts.
- "Petanque" court.
- Green Spaces including trees.
- Seating Areas.
- Pedestrian pathways.
- Sanitary facilities.



Fig. 3.50: Three-dimensional rendered view showing basketball courts and green spaces of the park

Project Scale and Location

The small-scale urban park spans over 5,000 sqm with a perimeter of 345 meters, serving the Boulaos district and neighboring communities, and enhances accessibility between two surrounding neighborhoods and the old municipal stadium neighborhoods.

Project Main Stakeholders

Owner/Developer (Public)
Djibouti Municipality

Owner/Developer
UNICEF

Consultant/Designer
UNICEF

Funder
Italian Military Support Base (BMIS)
Italian Ministry of Defense

Contractor/Implementer
Djibouti Municipality

Child-Friendly Urban Design

As a part of the "Djibouti, Child-Friendly City" initiative, it promotes inclusive urban spaces for children's growth and well-being. The Park provides a space for safe play and promoting physical activity as part of a healthy childhood.

Enhancing Well-Being and Community Bonding

Social engagement is targeted through a community space that fosters a sense of belonging and supports children's development. The Park promotes well-being by offering a space for relaxation, social interaction, and physical activities, especially for children. It is accessible to all, including disabled and elderly people.

Reducing Urban Heat Through Greenery

By creating green spaces in a desert climate, the park helps reduce urban heat and provides a cooling effect for local residents. The Park includes green spaces with trees to provide shade and contribute to a more pleasant urban environment. The project also contributes to urban resilience by providing green spaces that offer cooling, shade, and community spaces for relaxation and by supporting physical activity.

* https://araburban.org/infohub/projects/?id=7859

Fig. 3.49 & 3.50: retrieved from: https://www.facebook.com/photo/?fbid=2302223370041380&set=pcb.2302224273374623

27 Abdeen Square Development

Cairo, Egypt
[2015 - 2016]

Project Overview

Abdeen Square, surrounded by the historic Abdeen Palace, is a public square located in downtown Cairo. In 2015, it was identified for renovation as part of the Khedivial Cairo Redevelopment Plan. The Khedivial Cairo redevelopment plan was announced in 2014 and is an essential component of the Egyptian government's strategic urban development plan. It has two major Components, façade and public space renovation, as well as addressing traffic congestion issues. The redevelopment proposes interventions through four pilot projects, aiming to transform major squares in downtown Cairo into vibrant green spaces. Abdeen square was one of the four pilots selected for the renovation under the redevelopment plan. Historically, the square has gone through multiple land use changes, such as its conversion to a school and residential building, which impacted the size of its gardens as well as the type of activities taking place around the palace.

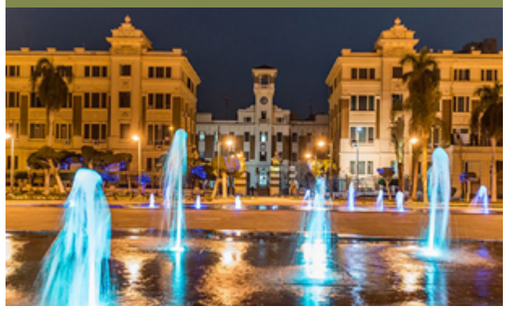

Fig. 3.51: Abdeen Square night view of the fountain and surrounding buildings.

Objectives

The project aims to:
- Create A Space That Celebrates The Adjacent Abdeen Palace.
- Addresses Traffic Congestion.
- Preserve The Historical Value Of The Area, While At The Same Time, Providing A Safe And Vibrant Green Space For Recreational And Cultural Activities.

Components

The project involves:
- Retaining the existing road network, and intervening only at the level of on-street parking
- Creating a main gathering plaza that fosters social activities
- Planting palm trees to create a vista of the Abdeen palace
- Connecting the two parks in the square and adopting elements of classical landscape design.
- The square itself was programmed into four zones, responding to the building fronts, gardens, main plaza, and groundcover, respectively.



Fig. 3.52: Khedivial Cairo redevelopment plan.

Project Scale and Location

The medium-scale urban park covers an area of 36,600 sqm in downtown Cairo, around the historic Abdeen Palace, formerly used as a parking lot.

Project Main Stakeholders

Owner/Developer (Public)
General Organization of Physical Planning (GOPP)
Cairo Governorate

Owner/Developer
The executive committee for the Khedival Cairo Development Project

Consultant/Designer
Cairo University – Urban Planning Department

Funder
The executive committee for the Khedival Cairo Development Project

Contractor/Implementer
Arab Contractors

Historic Preservation

The design of the square is inspired by formal historic gardens of Cairo, with straight lines and rectilinear shapes and to celebrate the Abdeen historical palace facing it. Existing road networks are retained but reduced on-street parking to create more green and pedestrian spaces. The project also improves the aesthetic and cultural value of the area, creating a gathering space for social interaction.

Community Engagement and Stakeholders' Collaboration

The project emphasized participatory urban design, involving different institutions including the UN Habitat, the General Organisation of Physical Planning, Cairo governorate and in collaboration with a technical team from Cairo University's Faculty of Regional and Urban Planning, which helped in planning and technical support for the renovation process.

Sustainability and Resilience

The project focused on preserving the historical value of Abdeen Palace, creating a safe and vibrant green space for residents to walk, cycle, and exercise while reducing vehicle congestion. The project increased green areas and pedestrian zones, which can reduce the urban heat island effect and contribute to improved air quality and climate resilience in Cairo downtown.

* https://araburban.org/infohub/projects/?id=6918

Fig. 3.51: retrieved from: https://www.instagram.com/rawaq.designstudio/

Fig. 3.52: retrieved from: https://fount.aucegypt.edu/etds/90/

28 Renovating the Azbakiya park

Cairo, Egypt
[2020- Ongoing]

Project Overview

The Azbakiya Garden Rehabilitation Project is a revitalization initiative focused on restoring one of Cairo's most historic and significant green spaces. The project's vision is to renew the Azbakiya Gardens as a "welcoming and accessible space for all", ensuring it serves as a vibrant cultural attraction and natural retreat for Cairo residents. The Objectives include the preservation and restoration of the garden's natural heritage elements, architectural structures, and iconic spaces, while reviving the garden's socio-urban and cultural role. The project is part of Egypt's broader initiative to conserve and develop historic Cairo.



Fig. 3.53: 3D rendered view of the park cafeteria and architectural style.

Objectives

The project aims to:
- Renew Azbakiya Gardens as an accessible, vibrant cultural attraction and natural retreat.
- Preserve heritage elements (historic trees, structures, iconic spaces).
- Contribute to Cairo's national heritage conservation for future generations.

Components

The project includes:
- The restoration of the historic crown top pergola, archaeological fountain, and Souq Al-Selah Club, along with the re-establishment of the lake and wooden bridge to brings back the garden's original charm.
- Refurbished walkways, seating areas for pedestrians, and a dedicated space for musical performances under the reconstructed pergola to revive the garden's cultural significance.
- New food outlets, cafeterias, and other amenities designed in a style that reflects the garden's 19th-century architectural origins, intended to enhance visitors' experience while honoring the park's historical essence.



Fig. 3.54: Master Plan of Azbakiya Park, illustrating the proposed layout and design interventions for the garden.

Project Scale and Location

The medium-scale urban park spans over 60,702 square meters in central Cairo. Located between historic and modern Cairo, this garden was initially established in the mid-19th century by Khedive Ismail, featuring distinctive French and European architectural designs.

Project Main Stakeholders

Owner/Developer (Public)
Cairo Governorate
Ministry of Housing

Consultant/Designer
Sites International
Ministry of Tourism and Antiquities
National Organization for Urban Harmony

Funder:
Egyptian Government

Contractor/Implementer
The Arab Contractors

Conservation As a Key Design Approach

Revitalization aims to restore key historical elements such as the crown top pergola, archaeological fountain, Souq Al-Selah Club, and the lake with its wooden bridge, which were integral to the garden's original charm. Refurbishment efforts also include walkways, seating areas, and the creation of a dedicated space for musical performances under the reconstructed pergola, reestablishing the garden's cultural role.

A Social and Cultural Hub

New facilities and pathways are being designed to ensure the garden is accessible to all visitors, especially people with disabilities. The integration of historical and cultural elements is central to the project, which aims to provide educational and recreational opportunities while preserving the garden's cultural heritage. Additionally, the garden's role as a venue for musical performances and cultural events is intended to reinforce its position as a social hub for the community.

Sustainable Materials and Ecological Awareness

The rehabilitation project emphasizes environmental sustainability through the use of sustainable materials and water conservation. The project also aims to enhance ecological awareness among visitors through informative signage about the trees and the garden's history.

* https://araburban.org/en/infohub/projects/?id=9759

Fig. 3.53 & 3.54, SITES INTERNATIONAL, retrieved from: https://www.sitesint.com/projects/renovation-of-al-azbakia-garden/

29 The Family Park

Cairo, Egypt
[2013- 2015]

Project Overview

Family Park is located at the eastern expansion of Greater Cairo towards Suez City, to be a focal point for the government's efforts to broaden the Cairo metropolitan perimeter. The family Park is designed to become a social and recreational hub for residents of New Cairo and to drive socio-economic development in this area.



Fig. 3.55: Arial view shows the design and main spine of the Family Park.

Objectives

The project aims to:
- Expand the Cairo metropolitan area toward Suez City and foster socio-economic development.
- Provide a recreational and educational environment that merges fun and learning for children and families.
- Cultivate curiosity, creativity, and knowledge through interactive, educational experiences.

Components

The project is divided into four main centers: Arts and Technology, Science, Nature, and Artistic Workshops.
- Some of the main attractions include a miniature railway, the Magic River, a safari area, theme park rides, and a diverse dining experience.
- The park's Components are categorized into entertainment, restaurants and cafes, service buildings, and green spaces. The entertainment section includes an amusement village, safari plaza, several theatres, a dancing fountain and dining facilities such as restaurants, cafés, a food court, and several kiosks.
- The park has educational attractions including the Discovery Palace, five exhibitions, an art and technology center, artistic workshops, and a museum. All these activities, alongside the entertainment amenities comprise the Magic River, playgrounds, the Tower of Discovery, and the Dragon Coaster.
- Attractions include a miniature railway, Magic River, safari area, theme park rides, amusement village, and safari plaza.
- Dining options: restaurants, cafes, food courts, and kiosks.



Fig. 3.56: Family Park Master Plan.

Project Scale and Location

The project is a medium-scale urban park spanning 283,000 sqm, with 141,640 sqm dedicated to green space and waterways. The park lies in the First District, opposite Al-Reahab City at the edge of New Cairo.

Project Main Stakeholders

Owner/Developer
Heliopolis Association

Consultant/Designer
SITES International

Funder
Heliopolis Association

Contractor/Implementer
SITES International

Design and Layout

The park design is inspired by the French garden Jardin de Clacmethion and incorporates civic, educational and recreational facilities, with the latest technology and educational techniques for children.

Educational and Interactive Features

Family Park offers interactive activities and programs for all educational levels, from primary school to university level. The park merges research, discovery, and entertainment to provide an environment that supplements children's education. It features four main centers: Arts and Technology, Science, Nature, and Artistic Workshops, with activities designed to stimulate curiosity and creativity in both children and adults. The Planetarium Scientific Center of the Library of Alexandria was nominated to manage the cultural facilities within the park due to its experience in managing cultural centers.

* https://araburban.org/en/infohub/projects/?id=9752

Fig. 3.55 & 3.56, SITES INTERNATIONAL, retrieved from: https://www.sitesint.com/projects/family-park/

30 Obeidi Park

Baghdad, Iraq
[2023- 2024]

Project Overview

The Obeidi Park project is an urban green project located in Al Rasafa district in east Baghdad city. The project consists of transforming an abandoned dumping site into a public park. The project is part of Baghdad Mayoralty's "Green Capital Strategy", which is a comprehensive plan aiming to revitalize abandoned and vacant areas in the city, transforming them into vibrant green spaces that will serve as new recreational centers for Baghdad families, in line with government directives.



Fig. 3.57: The dancing fountain in the middle of the park.

Objectives

The project aims to:
- Enhance quality of life by providing recreational, social, and sports opportunities.
- Create a clean and sustainable urban environment while mitigating climate change effects.
- Transform an abandoned dumping site into a vibrant public park as part of the Green Capital Strategy.

Components

The project includes:
- Establishment of 25,000 sqm of green space, including planting more than 1000 trees, palm trees, seedlings, and various plants and flowers.
- Creation of walking and sports trails.
- Establishment of kid's playground areas.
- Creation of seating areas and wooden rest facilities along the walking pathways of the park.
- Establishment of a sports hall.
- Construction of a large dancing fountain in the middle of the park with a diameter of 28 meters.

The park was inaugurated in 2024 and is open to the public daily with free access.



Fig. 3.58: Wooden rest facilities in the park.

Project Scale and Location

The project extends over a total area of 25000 sqm, located in Al Rasafa district, serving the district and larger Eastern Baghdad.

Project Main Stakeholders

Owner/Developer (Public)
Mayoralty of Baghdad
Al Gadir Municipality

Funder
Mayoralty of Baghdad

Contractor/Implementer
Projects Department of the Baghdad Mayoralty
Al Gadir Municipality

Improving Quality of Life in Surrounding Neighborhoods

The park's design focuses on creating spaces for relaxation and entertainment, making it an ideal location for families and individuals to spend time outdoors. In addition to providing a safe space for children to play, the park also attracts athletes with its sports trails and courts. By offering these amenities, the project seeks to enhance the social fabric of the surrounding neighborhoods, fostering a sense of community among visitors.

Eliminating Toxicity and Improving Sustainability

The Obeidi Park comes to replace an abandoned dumping site, eliminating a source of nuisance and toxicity in the area. Moreover, the sheer number of plantations and green surfaces have a considerable impact on the environmental quality in this area of the city, mitigating air pollution and enhancing biodiversity.

* https://araburban.org/en/infohub/projects/?id=8918

Fig. 3.57: retrieved from: https://www.facebook.com/al.mashareee/videos/1174406680680132/

Fig. 3.58: retrieved from: https://964media.com/387067/

31 Public Spaces for Recovery and Inclusivity: Mosul's Al Yarmouk Park

Mosul, Iraq
[2019 - 2021]

Project Overview

Al Yarmouk Park is located at the heart of Mosul, Iraq. The rehabilitation of Al Yarmouk Park as a multi-purpose public space was part of the area-based integrated project under the UNDP program supporting recovery and stability in Iraq through local development. It is also part of the Sustainable Development Goals (SDGs) – New Urban Agenda principle "Leaving no one behind".



Fig. 3.59: Children participation in Al-Yarmouk Park sports activities.

Objectives

The project aims to:
- Restore essential services in the public space that was disrupted by war and conflict.
- Be 'accessible for all' ensuring that it is suitable for the use of all age groups, as well as for the comfort and safety of people with disabilities.

Components

The rehabilitation project involves:
- Public activities, including environmental campaigns, cultural events, recreation and sports activities.
- Plantation and irrigation. The plantation activity introduced 300 new trees to the site, including 40 fruit trees and 60 palm trees. Two wells and a solar-powered irrigation system will be used to sustain the plantation.
- Solar energy projects.
- Skills and training program.
- Children's playground.
- 800 Sqm of grass cover was installed.
- Three multi-purpose sports courts.
- Open-air gym.
- Guard rooms.
- Cycling route.



Fig. 3.60: Part of Al-Yarmouk Youth Athletics for Peace events.

Al Yarmouk Park is a medium-scale project located at the heart of Mosul city, spanning an area of 67,000 sqm. The Park was designed to be an urban hub that is 'Accessible for All' ensuring that it is suitable for the use of all age groups and for the local community of Mosul.

Project Main Stakeholders

Owner/Developer (Public)
Mosul Municipality

Owner/Developer
Engineering Association For Development and Environment

Funder
European Union

Contractor/Implementer
UNDP
UN-Habitat

Women Capacity Development

A female-only horticultural training program was held with 30 participants, which helped create jobs for women with no fixed income. Other Components of the park also facilitated local economic development, with 236 jobs for unemployed residents of the area, 10 of whom were women.

Community Building

The "Al-Yarmouk Youth Athletics for Peace" initiative was introduced, where 200 children from the neighborhood participated in football league championships, basketball, and many other sports. These kinds of activities served in strengthening the social networks and connections between the community and give the youth a sense of belonging and relief. The 'Al Yarmouk Cleaning Day' was introduced as a joint initiative among multiple stakeholders for workers and volunteers to engage directly in the rehabilitation process of the project.

Promoting Environmental Sustainability and Resilience

The Park is a local rehabilitation development project that is acting as a post-war response. The project uses solar-powered irrigation, sustainable materials, and rainwater-absorbing plants. It aims to enhance social cohesion, create jobs, and improve environmental sustainability through clean technology, recycled materials, rainwater-absorbing plants, and green spaces. This supports climate resilience and adaptation by reducing floods, reducing the use of material and energy consumption, and in addition to reducing urban heat.

* https://araburban.org/infohub/projects/?id=6946

Fig. 3.59 & 3.60: UNDP, retrieved from: https://medium.com/@UNDPArabic/rehabilitated-public-spaces-can-be-powerful-generators-of-social-inclusiveness-and-greener-a3f0be21be3f

32 Al Zohour Triangle

Amman, Jordan
[2021 – Ongoing]

Project Overview

In response to the significant risk of flash floods in Amman, in 2019, UN-Habitat Jordan implemented the project "Strengthening the Social Stability and Resilience of Vulnerable Jordanian Communities and Syrian Refugees in Amman against Flash Floods". One of the research Components of the project consisted of the "Flood Risk Assessment and Flood Hazard Mapping" study of Downtown Amman, which proposed short, medium, and long-term solutions to address flood issue. The short-term solutions proposed installation of green stormwater infrastructure, the demonstration of which was done in the form of the Al Zohour Green Triangle.



Fig. 3.61: Inaugurating Al Zohour Green Triangle pilot project.

Objectives

The project aims to:
- Improve protection of selected sites.
- Reduce vulnerabilities of refugees and local communities.
- Enhance capacities within government and communities to manage flash floods in the city.

Components

The project involves:
- Water inlets: Inlet pipes to direct water from the streets into the bioretention system and the underground water tank.
- Water retention function: Bioretention and bioswales with an approximate capacity of 750 cubic meters, designed to enable ground permeability.
- Water detention function: Underground water tank with a capacity of 2,100 cubic meters
- Water reuse function: Detention tank with a pump to send out water for mobile water tankers or irrigation systems
- Water outlets: Drainage mechanism for excess water, especially during storms
- Landscape: Natural design features to integrate the infrastructure with the city and create an inviting public space



Fig. 3.62: Rendered image of Al Zohour Triangle.

The Al-Zohour Green Triangle is a small-scale initiative that serves as a pilot for possible replication in other 120 similar sites mapped by the project. It was implemented on an area covering 2,300 sqm, located at the intersection of Al Quds Street and Bab Al Khalil street within the Al Zohour District of Amman.

Project Main Stakeholders

Owner/Developer (Public)
Greater Amman Municipalit

Consultant/Designer
UN Habitat Jordan

Funder
Government of Japan

Contractor/Implementer
Greater Amman Municipality
UN Habitat Jordan7

Nature-Based Technologies

The initiative seeks to mimic the way nature handles water, collecting it, purifying it, and then gently reintroducing it into the stormwater system by following the principles of a Sustainable Urban Drainage System (SUDS). This approach works through two primary systems: stormwater bioretention and stormwater detention. For stormwater bioretention, a series of bioretention and bioswale areas are designed that enhance ground permeability through vegetation cover and facilitate the natural water cycle. Stormwater detention is demonstrated through the installation of an underground water storage tank.

Reduced Vulnerability

This initiative aims to strengthen local community and government capacities in flood risk management. Local communities and refugees can benefit from flood protection, reduced vulnerability, and future replication of solutions across Amman.

Promoting Environmental Sustainability and Resilience

The initiative aims to contribute to better resilience in the face of floods and the adopted SUDS approaches, which could present efficient and concrete solutions. The integrated landscape design with infrastructure can also enhance urban livability and environmental resilience.

* https://araburban.org/infohub/projects/?id=3964

Fig. 3.61 & 3.62: UNHABITAT, retrieved from: https://unhabitat.org/sites/default/files/2023/05/230319_al_zohour_brochure_a5.pdf

33 Al Shaheed Park

Kuwait, Kuwait
[2012 - Ongoing]

Project Overview

Al Shaheed Park, which translates to "Park of the Martyrs", is the largest urban park and green infrastructure project in Kuwait. It is a conversion of the historic Green Belt Park of 1961. Prompted by concerns regarding the former park's deteriorating condition, the Emir Office in Kuwait reclaimed it for the purpose of national events in the memory of war martyrs. The Park is part of the Kuwait City Structure Plan (2005-2030) and acts as a multi-functional public and green space surrounding the capital city.



Fig. 3.63: A view showing facilities inside Al Shaheed Park.

Objectives

The project aims to:
- Narrate the story of the land and highlight its historical and cultural significance.
- Be an active area for sports activities, cultural festivals, and educational programs for both adults and children.
- Protect the city from the effects of sandstorms and air pollution.

Components

The Park consists of three distinct sections of green spaces; each developed in a separate phase with a unique master plan. The first two phases have been completed while the third is under construction:
- Part 1 (2013-2015): extends along 0.22 square kilometers and features walking paths, botanical gardens, fountains, environmental and historical memorial museums, visitor centers, restaurants, shops, and underground parking. The buildings are distinguished with green roofs.
- Part 2 (2016-2017) extends over 0.135 square kilometers and includes walkways, an amphitheater, a multipurpose event space, and an architecture exhibition area.
- Part 3 (2018-Ongoing) spans 0.2 square kilometers, hosting two museum buildings, botanical gardens and social activities like an outdoor cinema, a kids' shaded playground, a sports building, an ice-skating rink, a snow park, and indoor skydiving.



Fig. 3.64: Phases of implementation of Al Shaheed Park.

Project Scale and Location

The park is located in Kuwait City, Al Shaheed Park is part of the "Green Belt" that historically surrounded the city, protecting it from environmental hazards such as sandstorms and air pollution. The Park covers nearly 20 hectares (550,000 sqm) and spans 2.5 kilometers along the city's green belt.

Project Main Stakeholders

Owner/Developer (Public)
Al Diwan Al Amiri

Consultant/Designer
Stroop+ Ricardo Camacho
TAEP The Associated Engineering Partnership

Funder
Emir Sabah Al-Ahmad Al-Jaber
Kuwait National Cultural District

Contractor/Implementer
Kharafi National
Al-Hani Construction and Trading Company

Reduced Water and Energy Consumption

The Park is made in part of the green roofs of immersed buildings to maximize greening potential and reduce the heat island effect. It also relies on drought-resistant plants, and renewable energy sources (solar panels) to reduce water and energy consumption.

A National Civic and Cultural Center

The Park provides educational programs and guided tours to engage residents and visitors, while also serving as a space for national events and celebrations, particularly in memory of Kuwait's war martyrs to raise awareness about environmental issues, and the importance of sustainability, by attracting approximately 2,000 visitors daily.

Fighting Desertification

The park seeks to mitigate environmental hazards like sandstorms, air pollution and desertification, contributing to a healthier urban environment while enhancing urban biodiversity through the use of native plants and green spaces.

* https://araburban.org/infohub/projects/?id=6294

Fig. 3.63: retrieved from: https://commons.wikimedia.org/wiki/File:A_miniature_city_in_Al_Shaheed_Park,_Kuwait.jpg

Fig. 3.64: Map data ©2025 Google

34 AL-Inbiâat Urban Park

Agadir, Morocco
[2020 - Ongoing]

Project Overview

Al-Inbiâat Urban Park is part of Al-Inbiâat Sports Complex project in Agadir, Morocco. The project falls within the framework of the Urban Development Program of the City of Agadir 2020-2024, which aims to improve the infrastructure of the city and the quality of life of residents and visitors, thereby strengthening the position of Agadir as an economic center and an engine of development in the Souss-Massa Region.



Fig. 3.65: 3D view illustrating the green spaces, children's play area and parking area.

Objectives

The project aims to:
- Address the deteriorating conditions in the southern area of the city, which includes open football fields and facilities, by transforming it into an urban park.
- Create a "green lung" between the coastal touristic area of agadir and the city center.
- Enhance the attractiveness of the city as a local and international touristic destination.
- Provide a recreational green space that complies with international quality standards.

Components

The project involved two main aspects:
- Development of the degraded area, which includes:
- A public square covering an area of more than 11,000 sqm.
- Walking areas and green spaces with four modern fountains and trees.
- Four multi-sport fields, four football fields, three basketball courts and children's play areas.
- Restaurants and 40 diverse local stores are strategically located in a strategic location between the Grand Theater in Agadir and the city's new library.
- Documentation and Resource Center and a library covering an area of 3000 sqm.
- The Grand Theater in Agadir covers an area of 20,000 sqm with a capacity of 1000 seats.
- Underground parking consists of two floors with a capacity of 600 cars and one above-ground parking.
- Rehabilitation of existing infrastructure and facilities:
- Rehabilitation of the Al-Inbiâat Stadium through the construction of a multi-track game track.
- Rehabilitation of the covered emission lounge.
- Rehabilitation and integration of the open-air theater.



Fig. 3.66: 3D view showing facilities in the park.

Project Scale and Location

The urban park is located between the coastal touristic area and the city center of Agadir, creating a vital connection between these zones, improving accessibility and integration of the city's urban spaces. The Park spans 200,000 sqm and could transform a key area of the city.

Project Main Stakeholders

Owner/Developer (Public)
Agadir Souss Massa Development (SDL)

Funder
Agadir Souss Massa Development (SDL)

Contractor/Implementer
Agadir Souss Massa Development (SDL)
SNTM (Société Nouvelle Travaux Maroc)

Treated Wastewater for Irrigation

The Park uses treated wastewater for irrigation with considerable impacts in terms of reduced clean water consumption

A Recreational and Cultural Center

The park has multiple access points and facilities catering to people of all ages and abilities, designed with full accessibility for disabled people, which ensures inclusivity and equitable access to recreational spaces. The project provides opportunities for recreational, cultural, and educational activities, including a theater, library, sports fields, and play areas, which encourage social interaction and community well-being.

Dealing With an Arid Environment

The Park helps improve the environment by creating green spaces that mitigate the urban heat island effect, reducing water use through sustainable irrigation, and enhancing biodiversity by planting climate-adapted trees and limiting the use of water-intensive species like palm trees. This contributes to improve adaptation in Agadir's arid climate.

* https://araburban.org/infohub/projects/?id=7680

Fig. 3.65 & 3.66: retrieved from: https://leseco.ma/maroc/agadir-ou-en-est-le-grand-projet-de-parc-urbain-al-inbiaat-carte.html

35 Arab League Park Rehabilitation Project

Casablanca, Morocco
[2016 – 2022]

Project Overview

The Arab League Park Project is a rehabilitation initiative for the historic park built in 1913, which is located in Casablanca's Sidi Belyout district. Known as one of Casablanca's green lungs, the project addresses the park's deteriorated conditions by rehabilitating fundamental landscape elements and developing additional green spaces, playgrounds, and public services. The project is part of the Green Spaces layer of the Greater Casablanca Development Plan (2015-2020).



Fig. 3.67: A view showing green spaces inside the park.

Objectives

The rehabilitation project aims to:
- Improve the quality of life for residents and visitors by creating a recreational green space for leisure and outdoor activities.
- Preserve the park's character and natural heritage.

Components

The project encompasses a range of recreational, environmental, social, economic and sports activities. It is implemented through two main approaches:

(1) Rehabilitating existing infrastructure, which includes the following features:
- Restoring of all areas of the park.
- Reunifying the park's two parts by transforming a section of Moulay Youssef Boulevard into a pedestrian street and demolishing some buildings on the boulevard, except those listed as national heritage.
- Rehabilitating the park's green spaces.

(2) Developing new areas and facilities, which include the following features:
- Sports trails.
- A playground.
- Five coffee shops and three kiosks with public restrooms.
- Underground parking.



Fig. 3.68: Aerial view showing the Arab League Park.

Project Scale and Location

The large-scale urban park extends over a total area of 3 million sqm in the Sidi Belyout district. Key features include the restoration of 55,000 sqm of green spaces. The project includes the conversion of a portion of Moulay Youssef Boulevard into a pedestrian street, integrating the park into the broader urban pedestrian network and making the area more accessible.

Project Main Stakeholders

Owner/Developer (Public)
Municipality of Casablanca
Casa Aménagement

Funder
Municipality of Casablanca
Ministry of interior
Casablanca – Settat Region

Contractor/Implementer
Casa Aménagement

Community Engagement

The project focuses on creating accessible spaces for residents and visitors, with playgrounds for children and sports facilities for athletes. It improves access to recreational facilities, enhances public spaces, and promotes physical activity through sports trails.

Promoting A Better Quality of Life and Urban Resilience

The project integrates sustainability through green space rehabilitation, pedestrian-friendly design, and climate-responsive infrastructure. Rehabilitated green infrastructure contributes to urban resilience by offering public spaces that enhance environmental quality and livability, improving air quality and urban aesthetics, reducing heat island effects and by promoting pedestrian mobility.

* https://araburban.org/infohub/projects/?id=7762

Fig. 3.67 & 3.68, retrieved from: https://commons.wikimedia.org/w/index.php?search=Arab+League+Park&title=Special:MediaSearch&type=image

36 Velodrome Urban Park

Casablanca, Morocco
[2020 - 2021]

Project Overview

The Velodrome Urban Park project is an adaptive reuse initiative for the Old Velodrome Stadium, built in 1922 and listed as a national heritage site since 2013. The initiative encompasses the rehabilitation of the old stadium and its transformation into an urban park by developing additional green spaces, playgrounds, and public facilities. This adaptive reuse project is part of a comprehensive national strategy aimed at preserving and enhancing Casablanca's tangible and intangible heritage.



Fig. 3.69: The platform and the bike path after rehabilitation.

Objectives

The project aims to:
- Improve residents' quality of life by creating a new public space dedicated to recreation and entertainment.
- Preserve the velodrome's character.

Components

The project includes the implementation of two aspects:
- Rehabilitation of existing infrastructure:
- The main platform to host concerts and other events.
- The bike path that extends over 320 meters.
- Development of new areas and facilities:
- A "petanque" court.
- A playground zone for children covering an area of 300 sqm.
- Three pavilions to be used for a restaurant, snack bar and coffee shop.
- Local shops.
- 8000 sqm of green spaces



Fig. 3.70: The playground area in the park.

Project Scale and Location

The project is located in the Anfa District of Casablanca, close to a major urban center, making it easily accessible for residents and visitors. The park covers 22,000 sqm and includes 8,000 sqm of green spaces.

Project Main Stakeholders

Owner/Developer (Public)
Casa Aménagement (SDL)

Consultant/Designer
Yassir Khalil Studio

Funder
General Directorate of Local Authorities of the Ministry of the Interior
Ministry of Culture, Youth and Sports
Casablanca-Settat Region

Contractor/Implementer
Casa Aménagement (SDL)

Attention to Engineering and Heritage Challenges

The rehabilitation of the Velodrome into a park implies the use of proper approaches and techniques to deal with issues of structural stability and adaptability and heritage conservation. This has impacts on the design of the new project and its activities.

A Driver of Business and Job Creation

The project supports local economic development by providing commercial spaces such as shops and dining pavilions, generating employment opportunities and boosting local businesses.

Community-Oriented Public Space

The park is designed to be attractive to a wide variety of profiles including families, children, athletes, and visitors from surrounding areas and elsewhere. Beyond green spaces, the park provides a venue for community activities and events.

Raising the Green Footprint

The project includes 8,000 sqm of green spaces, contributing to urban greening efforts, raising the overall green coverage in the city and improving the environmental quality of the surrounding area.

* https://araburban.org/infohub/projects/?id=7692

Fig. 3.69 & 3.70: retrieved from: https://www.casa-amenagement.ma/fr/mediatheques/parc-urbain-du-velodrome

37 Golden Jubilee Walkway

Muscat, Oman
[2021- Ongoing]

Project Overview

Golden Jubilee Walkway is an urban greening project in the Wilayat of Al Seeb in Muscat, the capital of the Sultanate of Oman. The project consists of constructing a green walkway connecting the districts of Mawaleh, Al Hail and Al Khoud, which is equipped with various facilities to sustain the residential and commercial neighborhoods. The project is part of the national program "Oman Vision 2040".



Fig. 3.71: The project under implementation phases.

Objectives

The project aims to:
- Enhance the quality of life by creating a public space for recreation, entertainment, and outdoor activities, reflecting the "humanizing cities" concept.
- Strengthen the social fabric and promote sports and physical health, making Muscat a hub for sustainable sports.
- Revitalize the area aesthetically and economically by incorporating modern visual elements and supporting commercial activity.

Components

The project involves:
- Pedestrian walkway and bicycle path, each 1,972 meters in length and designed for multi-use recreation and commuting.
- Three plazas for rest and social gatherings, equipped with green spaces covering 38,250 sqm of shade trees and diverse flowers.
- Two physical sports areas, two children's play zones, 75 canopies for visitor comfort, and 140 vehicle parking lots.
- Restaurants, cafes, and shops integrated into the walkway design to stimulate economic activity.



Fig. 3.72: 3D view showing the bicycle path and the pedestrian walkway.

Project Scale and Location

The project is bordered by Meizon Street to the north, the Southern Mawaleh neighborhood to the east and west, and the central market/commercial area to the south. It covers an area of 84,400 sqm, passing through residential, commercial, and landmark areas.

Project Main Stakeholders

Owner/Developer (Public)
Muscat Municipality

Funder
Muscat Municipality

Contractor/Implementer
Saif Al Harasi

Green Infrastructure and Modern Facilities

The project integrates green infrastructure and urban design elements to enhance usability and comfort. Facilities include shade-providing trees, landscaped green spaces, sports sites, play areas for children, and shaded resting areas, creating an inclusive and functional environment for diverse activities.

A Pilot of a Larger Vision Towards More Livable Cities in Oman

The walkway reflects the goals of Oman Vision 2040, emphasizing urban livability and sustainable development. It seeks to do so by integrating natural landscaping and multifunctional urban spaces, supporting the development of commercial activities and encouraging outdoor activities.

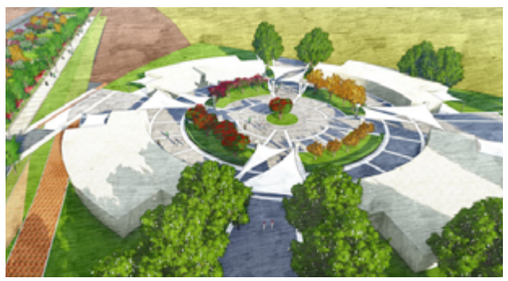

Fig. 3.73: 3D view of one of the main yards of the project.

* https://araburban.org/en/infohub/projects/?id=8916

Fig. 3.71: retrieved from: https://sah.om/project/construction-of-golden-jubilee-walkway/

Fig. 3.72: retrieved from: https://alroya.om/p/300625

Fig. 3.73: retrieved from: https://timesofoman.com/article/116579-work-on-golden-jubilee-walkway-project-begins

38 Al-Hilal Linear Park

Al Hilal, Qatar
[2018 - 2019]

Project Overview

The Linear Park in Al-Hilal, Qatar, aims to transform urban roadside spaces into vibrant, green, and environmentally friendly recreational areas promoting healthy lifestyle by providing citizens and residents with opportunities for outdoor exercise and activities.



Fig. 3.74: Riot of colors, green lawns, and trees.

Objectives

The project aims to:
- Transform urban roadside spaces into vibrant, green, environmentally friendly recreational areas.
- Promote a healthy lifestyle.
- Maximize the use of underutilized roadside spaces for recreational enjoyment and restfulness.

Components

The project involves:
- Dedicated pathways for walking, jogging, and cycling.
- Variety of trees, shrubs, and seasonal flowers.
- Community amenities like snack stalls, seating areas, and an artificial salt canal.



Fig. 3.75: Designed landscapes featured in the park.

Project Scale and Location

The project is located in Al Hilal area, along Al Najma Street, near Al Thumama and The Mall, Qatar. It is 1.5 kilometers long and 50 meters wide, covering an area of 75,000 sqm.

Project Main Stakeholders

Owner/Developer (Public)
Public Works Authority (Ashghal)
Ministry of Municipality and Environment (MME)

Consultant/Designer
AG Middle East

Contractor/Implementer
AG Middle East

Urban Green Space Design

The park blends soft and hardscape elements to create an inviting, multi-functional green space. The park exemplifies the innovative use of leftover urban spaces, transforming roadside areas into green recreational zones.

Promoting Accessibility and Community Use

The park was designed to be freely accessible, encouraging a wide range of visitors to enjoy its amenities. Its creation aligns with Qatar's goals of promoting healthy lifestyles and fostering community engagement through public green spaces. The park's accessibility and family-friendly environment have made it a key gathering point, particularly after the 2022 FIFA World Cup, which increased its popularity among both locals and tourists.

Repurposing Urban Spaces

The park reflects an adaptive reuse of roadside spaces, turning unused land into vibrant community areas. Its sustainable design promotes low-impact recreation and encourages residents to adopt active lifestyles. By integrating greenery into urban infrastructure, Al-Hilal Linear Park supports Qatar's vision of environmentally friendly urban development, while providing a model for transforming urban spaces into inclusive, accessible, and eco-conscious recreational areas.

* https://araburban.org/infohub/projects/?id=8527

Fig. 3.74 & 3.75: retrieved from: https://thepeninsulaqatar.com/article/05/02/2019/Ministry-opens-1.5km-linear-park

39 Umm Al Seneem Park

Doha, Qatar
[2019 - 2022]

Project Overview

Umm Al Seneem Park is a public urban park project established to serve as a recreational destination for residents and tourists of Doha. The project was awarded a Guinness World Record for the longest air-conditioned outdoor jogging and walking path. It aligns with the Public Works Authority's (Ashglal) Strategic plan for the humanization and beautification of cities.



Fig. 3.76: Shaded jogging and pedestrian walkway in Umm Al Seneem Park.

Objectives

The project aims to:
- Promote a healthy lifestyle for people of all ages.
- Maintain their health and wellbeing through walking, jogging and running.

Components

The project includes:
- 88,400 Sqm of green spaces.
- An air-conditioned jogging path.
- Cycling track.
- Fitness areas.
- Play zones.
- Kiosks.
- Family seating areas.
- Prayer areas.



Fig. 3.77: Trees and flowers alongside walkways in the park.

Project Scale and Location

The urban park is located in Al Rayyan Municipality, and is strategically positioned to serve a large number of residents and tourists, while improving accessibility to public green spaces in Doha. The Park spans 130,000 sqm, providing sufficient space for jogging paths, green areas, play zones, and seating areas while accommodating 3,000 visitors daily. The park is fully accessible, with facilities designed for people with disabilities, including play areas specifically for children with special needs, ensuring equal access for all users.

Project Main Stakeholders

Owner/Developer (Public)
Ministry of Municipality

Consultant/Designer
Public Works Authority (Ashghal)
Ministry of Municipality

Contractor/Implementer
Public Works Authority (Ashghal)
Ministry of Municipality

Outdoor Air-Conditioning

The Park incorporates sophisticated technologies, such as the longest air-conditioned outdoor jogging path, utilizing green walls to reduce cooling loads and creating a comfortable environment year-round. It also deploys renewable energy through solar panels to cool the jogging path and fitness boxes.

Focus on Community Well-Being

The project encourages social, recreational, and health-oriented activities, including free fitness classes, cycling tracks, jogging paths, and family zones, promoting well-being and community bonding while offering an inclusive environment for children and families.

Tech-Based Sustainable Urban Design

The park incorporates green walls, solar panels, and native trees that reduce heat, air pollution, and dust, creating a more sustainable urban environment while minimizing energy consumption.

* https://araburban.org/infohub/projects/?id=6834

Fig. 3.76: retrieved from: https://www.shutterstock.com/image-photo/umm-al-seneem-park-doha-qatar-2247728975

Fig. 3.77: retrieved from: https://www.istockphoto.com/photo/trees-at-umm-al-seneem-park-in-doha-qatar-gm1635282855-532820399

40 King Salman Park

Riyadh, Saudi Arabia
[2019 - Ongoing]

Project Overview

King Salman Park is a large-scale urban park and district under construction in Riyadh, Saudi Arabia, built on the grounds of the old airport. Envisioned as a green heart of Riyadh and branded as 'Beyond a Park', the upcoming project will be the largest urban park in the world. As part of Saudi Arabia's Vision 2030, King Salman Park is not only becoming a sanctuary of nature, but also a hub for culture, work and life.

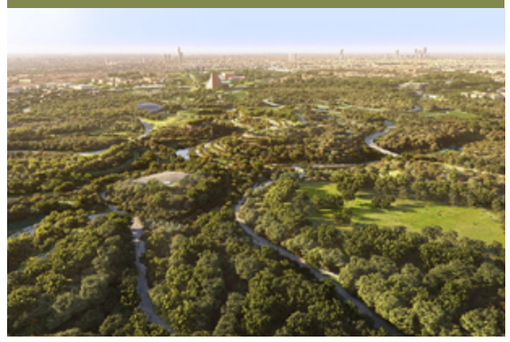

Fig. 3.78: 3D aerial rendering of King Salman Park.

Objectives

The project aims to:
- Develop a strategically located 'green oasis for riyadh residents and visitors.
- Introduce an innovative concept for urban parks aimed at fostering a healthy lifestyle and encouraging interaction with nature.
- Enhance the city's green cover and mitigate urban heat.
- Establish an 'attractive urban area and vibrant hub with events and activities.
- Foster cultural venues to strengthen the community's interest in art.

Components

The masterplan proposes 'a series of central public open areas surrounded by new mixed-use developments, forming a vibrant and sustainable urban district'. 12 square kilometers of land is allocated for green space, where 1 million plants are to be planted, incorporating the following elements:
- Environmental elements: The green and open areas of the park cover over 9.3 square kilometers and include a 'wadi' (valley) of 0.8 square kilometers leading towards the park's center. They also include an internal 'urban loop' which is a circular promenade framing the park, with a length of 7.2 kilometers, designed for walking and cycling. Landmarks and major facilities will be constructed along the loop. Various water features are also planned, covering an area of over 0.3 square kilometers.
- Royal Art Complex: Spanning 0.4 square kilometers, this includes the Royal Institute of Traditional Arts, the Museum of World Cultures, a specialized Arts and Culture library, and a National theater with a seating capacity of 2,300.
- Cultural Facilities: Comprises seven different museums, such as the Aviation Museum, Astronomy and Space Museum, Museum of Plants, Virtual Reality Museum, and Architecture Museum. It also consists of plazas covering a total area of 0.04 square kilometers for hosting different events and exhibiting artworks.
- Sports and entertainment facilities Include a Royal Golf Course covering an area of 0.85 square kilometers, a sports complex on an area of 0.05 square kilometers, a virtual reality court, a sky diving center, an equestrian center, a 0.1 square kilometer amusement park, and a 0.14 square kilometer aquapark.
- The Visitor Pavilion: Includes environmental, cultural, and educational centers covering an area of 0.09 sqm. It will also consist of a 360-degree terrace overlooking the park, interactive exhibits about the park's elements, meeting rooms and multipurpose halls, a plant nursery, restaurants and a cafe.
- Housing, Hospitality and Business: The urban district integrated into the park includes around 12000 residential units, 16 hotels with a total of 2300 rooms, and 0.5 square kilometers of retail space.
- Public Facilities: These include mosques, police, healthcare, educational and social facilities, public libraries, 0.28 square kilometers of parking spaces, service roads, walkways and pathways, district cooling plant among others.

Project Main Stakeholders

Owner/Developer (Public)
King Salman Park Foundation (KSPF)

Owner/Developer
King Salman Park Real Estate Fund

Consultant/Designer
Omrania
Henning Larsen Architects

Funder
Government funding
King Salman Park Foundation (KSPF)
King Salman Park Real Estate Fund

Contractor/Implementer
The King Salman Park Foundation (KSPF)
Nesma & Partners
Al-Rashid Trading & Contracting Company (RTCC)

Project Scale and Location

The project is built on the grounds of Riyadh's old airport covering 13.3 million sqm. Its strategic location in the capital ensures easy accessibility and proximity to existing infrastructure. The project will be linked to several main roads, and supported by the King Abdulaziz Public Transport Project, a sustainable public transport-oriented development, running through five stations on the Green Line of Riyadh Metro, and 10 stations of Riyadh Bus network.

Advanced Water Management and Energy Technologies

The park integrates advanced water management systems to be able to ensure the adequate irrigation of all the park plants and ensure the needs of its recreational and commercial activities. It also relies on renewable energy production to mitigate part of its energy consumption.
Public-private partnership in urban development and creation of thousands of jobs
The project incorporates innovative urban development approaches, merging green spaces with cultural and recreational hubs, and introducing public-private partnerships for funding real estate Components. King Salman Park will create thousands of jobs, particularly in construction, tourism, arts, culture, and real estate, fostering economic and social development in the region.

Public Engagement Through Cultural and Recreational Spaces

The park is designed to serve as a hub for cultural, social, and recreational activities, encouraging public engagement through museums, theaters, public plazas, and interactive exhibits. These activities should cater to visitors of all ages and social groups.

An Oasis to Transform the City

The park aims to enhance Riyadh's green cover by planting one million plants and trees, integrating water features, and creating sustainable urban environments through eco-friendly infrastructure. The project seeks to become an experimentation ground to sustainable approaches and technologies that could allow to deal with urban heat and an arid climate.

* https://araburban.org/infohub/projects/?id=6731

Fig. 3.78: retrieved from: https://commons.wikimedia.org/wiki/File:KSP_Landscape.jpg

41 Al Nilein Park

Khartoum, Sudan
[2017- 2018]

Project Overview

Al Nilein park project is a large public urban park east of Khartoum. It serves as a public space for residents, offering a variety of activities dedicated to both children's and adults' recreation. The project is part of the city program to support development and touristic projects in Khartoum that aim to develop and enhance service networks, and achieve balanced development across all administrative units and surrounding areas.



Fig. 3.79: Green spaces and facilities in the park.

Objectives

The project aims to:
- Enhance livability for Khartoum residents by providing a recreational and entertainment space.
- Improve city infrastructure and basic facilities.
- Contribute to Khartoum and neighboring states' development and attract tourism.

Components

The project includes:
- Dedicated family gathering spaces.
- Children's Playgrounds areas.
- Recreational and sports facilities for different age groups.
- Restaurant and cafeteria.
- Sitting Areas.
- Green Spaces including trees (palm trees, Albizia trees) and cactus Gardens.
- Sanitary facilities.



Fig. 3.80: Green terraces inside the park.

Project Scale and Location

The medium-scale urban park covers 30,000 sqm in central Khartoum. It is Located across from the Coral Hotel on Nile Street in East Khartoum, situated at the junction of the two Niles rivers, providing a central and scenic recreational area for residents and tourists.

Project Main Stakeholders

Owner/Developer (Public)
Municipality of Khartoum

Consultant/Designer
Sour Company

Funder
Municipality of Khartoum

Contractor/Implementer
Sour Company

Social and Environmental Contributions

The park provides a space for relaxation, outdoor activities, and social interaction for residents. It attracts families, children, and athletes, contributing to the social life of the city. Environmentally, it features green areas with trees and gardens, enhancing the urban landscape. However, no specific environmental or social assessments are provided for the park.

Long-term Management and Community Engagement

The project focuses on providing recreational and green spaces to enhance the quality of life for Khartoum's residents. The long-term management plan includes ongoing maintenance of the park's green spaces.



Fig. 3.81: Children's play area in the park.

* https://araburban.org/en/infohub/projects/?id=8936

Fig. 3.79, 3.80 & 3.81: retrieved from: https://commons.wikimedia.org/w/index.php?search=al+taif+park&title=Special%3AMediaSearch&type=image

42 Bab Qinnesrine Park

Aleppo, Syria
[2010 - Ongoing]

Project Overview

Bab Qinnesrine Park in Aleppo, Syria, is an urban park project led by the Aga Khan Trust for Culture, located near the historic Bab Qinnesrine Gate, which was constructed by Sayf al-Dawla, offering views of the old city of Aleppo and the historic Citadel of Aleppo. The project's main objective is to revitalize the historic area near the old city's southwestern gate by creating a vibrant, multi-function green space that harmonizes with Aleppo's rich historical fabric.

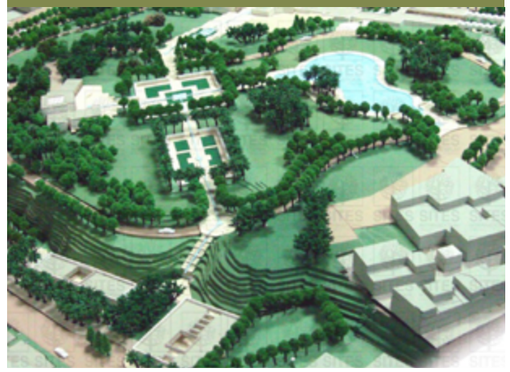

Fig. 3.82: 3D view showing green spaces inside Bab Qinnesrine Park.

Objectives

The project aims to:
- Enhance the quality of life for residents by providing a healthy outlet for residents with a large green public space, particularly those in the surrounding informal areas.
- Preserve the cultural heritage of the space by protecting the key historic features in the park.
- Boost the local economy and create job opportunities through the commercial activities in the park upon completion.

Components

The project includes:
- Green spaces, caves, a historical area, children's play areas, outdoor event spaces, restaurants and shops along the green spine, lakes, a mosque, and a nursery.
- Tourist services and a commercial zone supported by pedestrian areas, with three entrances at the park's periphery as an interface with its surrounding residential and commercial areas.
- Parking spaces for visitors.



Fig. 3.83: Master Plan for the Bab Qinnesrine Park rehabilitation project.

Project Scale and Location

The park covers an area of 130,000 sqm and includes green spaces, pedestrian paths, a mosque, commercial zones, and tourist services. It is located near the historic Bab Qinnesrine Gate and the Citadel of Aleppo, the park is strategically positioned to capitalize on its proximity to key historical landmarks in Aleppo. The project emphasizes accessibility, especially for Aleppo's residents living near the old city and the neighboring surroundings.

Project Main Stakeholders

Owner/Developer (Public)
Aleppo Municipality

Owner/Developer
Aga Khan Trust for Culture (AKTC)

Consultant/Designer
SITES International Landscape

Funder
Aga Khan Development Network

Contractor/Implementer
Aleppo Municipality

A Focus on Historical Landscapes

The project emphasizes the conservation of natural features and historical caves, with an urban design inspired by the traditional souk of Aleppo, blending new with old. The project reflects a focus on urban regeneration within a historic city, incorporating sustainable practices in cultural heritage preservation.

Community-Driven Preservation and Job Opportunities

The project involves local residents and cultural organizations in its planning and implementation, particularly in preserving historical elements and revitalizing the surrounding areas. It also enhances the well-being of residents through accessible green spaces and recreational activities, and by providing job opportunities, particularly in surrounding informal areas, through the commercial activities within the park, while also promoting tourism and local business development.

* https://araburban.org/infohub/projects/?id=7654

Fig. 3.82 & 3.83: SITES INTERNATIONAL, retrieved from: https://www.sitesint.com/projects/bab-qinnesrene-park/

43 Jubail Mangrove Park

Abu Dhabi, United Arab Emirates
[2018 - 2020]

Project Overview

Jubail Mangrove Park (JMP) is the first self-contained educational, natural, and leisure park on Jubail Island in the Emirate of Abu Dhabi. The Park blends the natural landscape of mangrove forests, wildlife, and marine life with recreational and public facilities.



Fig. 3.84: Visitors at Jubail Mangrove Park.

Objectives

The project aims to:
- Protect and preserve the island's ecosystems and habitats.
- Provide an eco-tourism experience in the capital city.
- Raise environmental awareness about the role of ecosystems in preserving the city's biodiversity.

Components

The project involves:
- A trail with a boardwalk. The trail is designed in three loops:
- Orange path: features a "floating platform" with a net for close marine-life observation, a viewing area called "power of the sea" that offers enhanced water access, "roots of the mangrove" area, dedicated to observing the roots of mangrove trees, two resting nodes, and two viewpoints.
- Blue path: includes a viewing tower located at the park's center for a higher viewpoint and two resting nodes.
- Green path: includes a "salt collector" node featuring water collectors at various levels to showcase changing tides and a low-level "beach tower" platform where visitors can get their feet wet.
- The park also includes public facilities such as a visitor center, kayak jetty dock, and parking space.
- Educational and environmental awareness programs on ecological topics, through initiatives such as mangrove plantation, habitat restoration, and guided walks.
- Other activities include stand-up paddling, yoga, and meditation



Fig. 3.85: A two-kilometer walk in the park.

Project Scale and Location

The large-scale urban park is located on Jubail Island, Abu Dhabi, between Saadiyat Island and Yas Island. It is a 22-minute drive from Abu Dhabi International Airport, making it accessible for both locals and tourists. The Park covers 19 million sqm, with 75% of Abu Dhabi's mangrove forests. The boardwalk in the park spans 1 million sqm, with trails segmented into three loops, each offering unique experiences.

Project Main Stakeholders

Owner/Developer (Public)
UAE Government

Owner/Developer
Modon Properties
Jubail Island Investment Company (JIIC)

Consultant/Designer
GHD
Environment Agency Abu Dhabi (EAD)

Funder
Environment Agency Abu Dhabi (EAD)

Contractor/Implementer
CEBRA Architects

Sustainable Design and Habitat Restoration

The project provides educational programs and initiatives on mangrove ecosystems, sustainability, and biodiversity. The project implements sustainable design practices in collaboration with environmental agencies, including boardwalk construction that minimizes habitat disruption, and conservation efforts like mangrove restoration.

Community Engagement and Improving Quality of Life

It engages the community in conservation efforts like mangrove planting and restoration. The park offers accessible trails and activities for a wide demographic, including families, tourists, and educational groups. It engages visitors through educational programs, mangrove restoration activities, and eco-tourism experiences. The project provides a natural, recreational space that promotes physical activities like walking, kayaking, and yoga, while enhancing environmental awareness. The park serves as a serene escape for relaxation and meditation.

Environmental Preservation

Contributes to the UAE's mangrove conservation efforts, serving as a carbon sink, protecting shorelines, enhancing marine biodiversity, and reducing erosion. It promotes sustainable urban development that integrates nature and recreation. Mangroves act as natural buffers against coastal erosion and flooding, while also absorbing carbon dioxide and preserving biodiversity, thus playing a vital role in climate change adaptation and mitigation.

* https://araburban.org/infohub/projects/?id=7973

Fig. 3.84 & 3.85: retrieved from: https://experienceabudhabi.com/jubail-island-mangrove-walk/

44 Umm Al Emarat Park

Abu Dhabi, United Arab Emirates
[1982 - 2015]

Project Overview

Umm Al Emarat Park is a recreational and educational community hub in Abu Dhabi, UAE. It is one of the oldest and largest parks in Abu Dhabi. The park seeks to serve as a community hub that fosters family connections and social interactions while celebrating Abu Dhabi's cultural tradition. It aims to provide a wide array of recreational, educational, and environmental programs that cater to all age groups, thereby contributing to the health and well-being of its visitors.



Fig. 3.86: Climbing activities at the kids playground.

Objectives

The project aims to:
- Serve as a community hub that fosters family connections and social interactions while celebrating abu dhabi's cultural preservation and natural conservation.
- Provide a wide array of recreational, educational, and environmental programs that cater to all age groups, thereby contributing to the health and well-being of its visitors.

Components

The project includes:
- An amphitheater: Located opposite the Entrance Pavilion with an area of 6,000 m², this large outdoor venue accommodates over 3,000 people for events like concerts, theater performances, and art displays, featuring an interactive water fountain, dressing rooms, and space for lighting and art installations.
- An animal Barn & Petting Zoo: A 1,200 m² area situated in the Children's Garden, managed by Al Ain Zoo, houses 26 animals including ponies and camels, and features misting fans for summer cooling.
- A Botanic Garden: Spanning 7,000 m², hosts over 200 plant species from the UAE and other countries, featuring a natural-stone pond, wooden benches, and a small bridge.
- A Children's Garden: A 11,000 m² interactive play area accommodating 3,000 people that includes various play zones, water splash, outdoor cinema, and kids' activities for AED 10 each.
- An Evening Garden Pavilion: A peaceful 3,000 m² green space for relaxation, reading, or working, containing toilets and seating areas.
- A Great Lawn: An 18,000 m² open space for sports, yoga, and relaxation,



Fig. 3.87: Vegetable farming at 'My Little Farm'.

accommodating up to 8,000 people, with two playgrounds, sensory activities, anemometers, outdoor exercise equipment, seating areas, and F&B outlets.
- A Shade House: This 1,000 m² iconic structure is 40 m long, 30 m high, and features two upper-level decks overlooking the park, with an elevator, toilets, a 690 m² lawn, and 40 plant species in a moisture-controlled atmosphere.
- The Wisdom Garden: A 1,230 m² serene garden dedicated to the legacy of Sheikh Zayed bin Sultan Al Nahyan, displaying 30 of his quotes, with 10 marble walls and water structures.
- The Promenade: A 340 m² relaxing path with palm trees, water features, wooden benches, and a venue for hosting markets, ideal for walking and unwinding.

Project Scale and Location

The park is located in Central Abu Dhabi, UAE. It Covers an area of 145,000 sqm. It is a public park that attracts local communities and tourists.

Project Main Stakeholders

Owner/Developer (Public)
Al Ain Properties

Consultant/Designer
Semple Brown Design
BrightView Design Group
Crystal Fountains
Water in Motion

Contractor/Implementer
BrightView Design Group

Park Layout and Design Features

Umm Al Emarat Park's design emphasizes the integration of water features and interactive installations, enhancing the visitor experience and the park's functionality.

Social Hub with a Focus on Children

Umm Al Emarat Park serves as a community gathering space, offering a range of programs designed to foster social interaction, family bonding, and educational enrichment. Visitors can enjoy diverse recreational activities, community events, and interactive learning opportunities. The park provides spaces, such as the Animal Barn and Great Lawn, that encourage visitors of all ages to engage in physical activity and shared experiences.

Environmental Design and Conservation

The park is designed with a focus on preserving the natural environment, including the conservation of over 200 existing trees. Its design features water-efficient landscaping and integrates elements that reduce its environmental impact incorporates infrastructure, such as the Shade House, which creates a controlled environment for specific plant species, alongside spacious areas for relaxation and recreational activities.

* https://araburban.org/infohub/projects/?id=8557

Fig. 3.86 & 3.87: retrieved from: https://www.ummalemaratpark.ae/en/Venue/Great-Lawn

45 Greater Aden Park

Aden, Yemen
[2022- Ongoing]

Project Overview

The Greater Aden Park serves as a public space for residents, offering a variety of activities dedicated to both children's and adults' recreation. The project is part of a comprehensive post-war recovery effort to enhance the urban environment in Aden, and ultimately improve the quality of life in the city.



Fig. 3.88: 3D view of the green spaces of the park.

Objectives

The project aims to:
- Create a vital public space for recreation, leisure, and entertainment for both residents and visitors.
- Beautify the city and enhance the urban environment.
- Build a cultural and civic hub for the city

Components

The project includes:
- Vast green spaces and pedestrian pathways.
- Large water surfaces, including an artificial lake and dancing water works.
- Seating areas and service facilities.
- Dedicated family gathering spaces and children's playgrounds.
- Sports courts and recreational facilities.
- A cultural hub including an outdoor amphitheater, a public theater, a cultural center, a museum, an open exhibition and a cinema hall.
- A recreational park including roller coasters, a wheel, electronic games.
- Parking.
- Construction began in November 2024, with a target of completing and inaugurating the park within two years.



Fig. 3.89: Greater Aden Park Master Plan.

Project Scale and Location

The project spans 218,946 sqm, making it one of the largest green spaces in Aden. It is centrally located in the Khormaksar district of Aden, connecting multiple neighborhoods. However, activities in the park would attract a wider number of visitors from the city and beyond.

Project Main Stakeholders

Owner/Developer (Public)
Government of Yemen
Governorate of Aden

Consultant/Designer
HS Group

Funder
Al-Bayraq Investment Group

Contractor/Implementer
Al-Bayraq Investment Group

Renewable Energy and Sustainable Water Management

The project was initiated by Yemen's national government and the Aden Governorate. Implementation and management have been entrusted to Al-Bayraq Investment Group, with the master plan designed by HS Group.

Social and Cultural Hub in a Context of Postwar Recovery

The park is not just a green area but is designed to serve as a hub for recreation, sports and most importantly a diverse set of cultural activities, and sports. It also set to fulfill an important role in the process of postwar recovery and improving the livability of the city.

A Large Green Project in a Dense Urban Area

The park is meant to bring wide green spaces and water surfaces to a dense urban area contributing to improving the environmental quality of the neighborhood.

* https://araburban.org/en/infohub/projects/?id=9761

Fig. 3.88: retrieved from: https://www.youtube.com/watch?v=RTXgtbV7kJY

Fig. 3.89: retrieved from: https://al-awal.net/14392

46 Oued Smar Urban Park

Algiers, Algeria
[2009 - 2018]

Project Overview

The Oued Smar Urban Park is a rehabilitation initiative transforming Algiers' largest dumpster into a recreational and ecological park located at the southeastern entrance of the capital, along the international airport road. The project is part of Algiers' green plan for 2035.



Fig. 3.90: Plants and vegetation at Oued Smar Urban Park.

Objectives

The project aims to:
- Reduce pollution and eliminate the unpleasant odors that once plagued the area.
- Promote ecotourism.
- Provide a relaxing and recreational destination for city residents, particularly those in the rapidly growing eastern region.

Components

The project includes:
- Taking down the dumpster and transforming it into a landfill.
- Replanting vegetation, including 23 plant species, to stabilize the soil.
- Developing peripheral roads and cycling paths.
- Installing a biogas collection system for electricity production.
- Establishing a system to collect and treat leachate into purified water.
- Developing recreational and public facilities, such as an exhibition center, a museum, 20 wooden canopies, five food shops, public toilets, and urban furniture including 350 benches.
- A parking area for 2,500 vehicles.
- 220 streetlamps powered by biogas from the landfill.
- Water for the park is produced by treating waste osmosis, with a leachate treatment unit comprising 127 wells of capacity 720 m³ per day.
- 400- meter-deep well.
- two 150-cubic-meter water tanks for irrigation.



Fig. 3.91: Arial view showing the Oued Smar Urban Park after implementation.

Project Scale and Location

The park is located at the southeastern entrance of Algiers, along the international airport road, benefiting the growing eastern region and providing a recreational space for those entering or leaving the city. It covers 500,000 sqm, including 200,000 sqm of trees, 110,000 sqm of natural grass, and 90,000 sqm of pathways. The Park is designed to be accessible to all, offering a wide range of facilities making it inclusive for residents of all ages and backgrounds.

Project Main Stakeholders

Owner/Developer (Public)
Wilaya of Algiers
Ministry of Environment

Consultant/Designer
LIBANCONSULT AGM
Wilaya of Algiers

Funder
Wilaya of Algiers

Contractor/Implementer
Wilaya of Algiers
Office of Sports and Leisure Parks of Algiers (OPLA)
EPIC EDEVAL

Renewable Energy and Sustainable Water Management

The project includes biogas collection for energy production, leachate treatment for purified water, and the use of drip and sprinkler irrigation systems for the park's green spaces.

Engineering-Based Sustainable Design

The Park significantly reduces pollution, eliminates odors from the former dumpster, and contributes to environmental restoration by stabilizing soil and using renewable energy for lighting and water treatment. The Park helps mitigate climate change by preventing soil erosion, and promoting the use of renewable energy (biogas) and sustainable water management practices.

* https://araburban.org/infohub/projects/?id=7911

Fig. 3.90 & 3.91: M.D.S AKLI (Ath Salem), retrieved from: https://www.flickr.com/photos/144330620@N04/33314161410/

47 Al-Azhar Park and the Revitalization of Darb al-Ahmar

Cairo, Egypt
[1997 - 2009]

Project Overview

The Al-Azhar Park is a landmark public park and urban revitalization project in the historical city of Cairo. The project vision is to create a green lung in the heart of Cairo. The idea of the project dates to 1984, with the Aga Khan decision to donate a park to the citizens of Cairo. Additionally, it aims at fostering community development, local economic revitalization, and the preservation of cultural heritage in one of the poorest, most populous and historically rich parts of the city.



Fig. 3.92: Houses in Darb al-Ahmar after the intervention.

Objectives

The project goals are to:
- Promote community growth, local economic revival, and cultural heritage preservation in one of the city's most impoverished, populated, and historically significant areas.
- Align with the objectives laid out in the aga khan historic cities programme (akhcp).
- Respond to the lack of sufficient open green spaces in cairo.

Components

The project includes:
- A park with a major pedestrian spine that extends north-south, linking the diverse proposed landscape elements designed with a notable islamic style. The park includes intersecting water channels, historic wall restoration, fountains, sunken gardens, and plazas with furniture and lighting fixtures. The park also includes conference facilities, children's areas, cafes, and a restaurant over an artificial lake.
- Urban renewal and social projects including housing rehabilitation, street and open space improvements, micro-credit programs, healthcare facilities, and the establishment of a touristic route through restored monuments in the adjacent darb al-ahmar district.



Fig. 3.93: Aerial view of the Al-Azhar Park and Darb Al-Ahmar revitalization project.

Project Scale and Location

The urban park is on a 300,000 sqm previously derelict dump site in the center of Cairo, and seen as a strategic open green space at the heart of the historic city. It is easily accessible to surrounding neighborhoods and other Cairo districts due to its central location.

Project Main Stakeholders

Owner/Developer (Public)
Governorate of Cairo

Owner/Developer
Aga Khan Trust for Culture (AKTC)

Consultant/Designer
Aga Khan Cultural services- Egypt (AKCS-E);
Sasaki Associates;
Sites International

Funder
Aga Khan Trust for Culture (AKTC)
Funds from the Egyptian-Swiss Development Fund, the Ford Foundation, the World Monuments Fund, Social Fund for Development (SFD) and Canadian International Development Agency

Contractor/Implementer
Aga Khan Cultural services- Egypt (AKCS-E)

Featured Landscape Designs

Landscape elements are designed with a notable Islamic style. Islamic geometric designs are used in Plazas along with custom-designed furniture and lighting fixtures implemented by local artisans from a nearby neighborhoods.

People-Centered Urban Park

The core spine of the master plan accommodates spaces for social gatherings and activities, accessible to locals and visitors alike. Since its opening, it has attracted more than 1.2 million visitors annually.

Restoration Knowledge Transfer

The first phase of the project featured the restoration of a discovered heritage wall on site. Vocational training was provided for local craftsmen in restoration techniques.

Socio-Economic Impact

The project has a socio-economic impact that goes beyond greening. In conjunction with the park creation, a series of social projects aimed at improving the quality of life for residents in the adjacent Darb al-Ahmar district.

Promoting Environmental Sustainability and Resilience

Sustainability and resilience were approached through the creation of green spaces, improved air quality and urban cooling effects in Cairo. The project also seeks to enhance resilience through cultural preservation of the historic area of Darb-Alahmar.

* https://araburban.org/infohub/projects/?id=3623

Fig. 3.92 & 3.93, retrieved from: https://commons.wikimedia.org/w/index.php?search=Al-Azhar+Park&title=Special%3ASearch&ns0=1&ns6=1&ns12=1&ns14=1&ns100=1&ns106=1

48 Fustat Park

Cairo, Egypt
[2019- 2024]

Project Overview

Fustat Park is a redevelopment project transforming a historic dumpster site into a vast urban green space in the heart of Historic Cairo. The park is designed to enhance the environmental quality of this culturally rich urban area. The primary Objectives of the project are to revitalize the historic area, increase green spaces, boost tourism, and provide recreational and educational facilities while preserving the historical and archaeological significance of the region.



Fig. 3.94: An aerial perspective showcasing the project's development and urban design.

Objectives

The project aims:
- Revitalize the historic area by transforming a former dumping site into a green space.
- Increase green spaces, boost tourism, and provide recreational and educational facilities.
- Preserve the historical and archaeological significance of the region.

Components

The project includes:
- Development of extensive footpaths and green spaces that would cover 88% of the park's surface area.
- A large public fountain and a series of canals and smaller water bodies.
- An open theater is used for public events.
- Children's playgrounds and two cafeterias.
- The evacuation and relocation of 4,700 families from unplanned slum areas to make way for the park's development.
- Integration of the park with surrounding historical sites, linking them through a series of tourist and leisure facilities including restaurants, markets, museums, hotel.

The project has been developed in phases since 2021, with a focus on relocating slum residents and building out park facilities.

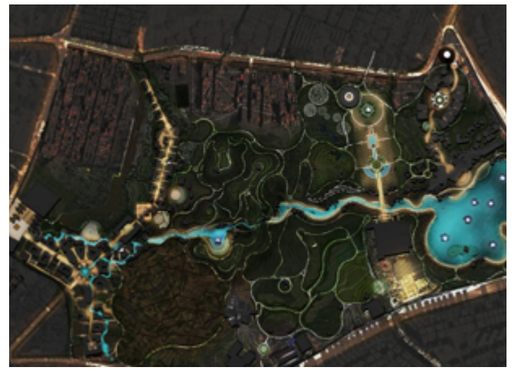

Fig. 3.95: Integration of the project's landscape design with the surrounding site context.

Project Scale and Location

The project spans over 5 million sqm in Historic Cairo, transforming a formerly neglected area into a multifunctional green space. It is centrally located near key historical landmarks like the Civilization Museum, Ain El-Serra Lake, and Amr ibn Al-Aas Mosque. It is an extension to the historical area and a major destination that would attract tourists and residents from all over the city.

Project Main Stakeholders

Owner/Developer (Public)
Central Agency for Reconstruction
Ministry of Housing, Utilities, and Urban Communities

Consultant/Designer
EHAF Consulting Engineering
DLR Group

Funder
Urban Development Fund

Contractor/Implementer
Cairo Greater Reconstruction Agency

The Park as an Urban Development

This park represents a major urban development operation in central Cairo. It connects key touristic locations, brings in greening and public facilities to this dense urban area and offers investment opportunities for recreational and tourism-oriented businesses. Moreover, the park serves to boost the development of the Fustat area, from an area dominated by informal settlements and dumpsters to one that is attracting several high-end large-scale residential developments.
Relocation Of Existing Population And Treatment Of Dumping Site
The park has a significant social dimension, having relocated 4,700 families from unplanned slum areas to facilitate the park's development. It also had to dismantle existing dumpsters and rehabilitate the soil to allow plantation.

A Considerable Green Cover in the Heart of Cairo

The sheer size of the park and its planted areas would allow a significant rise in the green cover in Cairo's central areas. It would also allow to mitigate air pollution and improve the overall environmental quality of this area.

* https://araburban.org/en/infohub/projects/?id=9376

Fig. 3.94 & 3.95: retrieved from: https://www.ehaf.com/project/fustat-parks

49 Baghdad Sustainable Forests Project

Baghdad, Iraq
[2020- Ongoing]

Project Overview

Baghdad Sustainable Forests Project is a redevelopment initiative of the former Al-Rasheed military camp, in Baghdad city into an urban park including sustainable forests and recreational zones, after being used as a landfill since 2003. The project is part of Baghdad Mayoralty "Green Capital Strategy" which is a comprehensive plan aiming to revitalize abandoned and vacant areas in the city, transforming them into vibrant green spaces that will serve as new recreational centers for Baghdad families, in line with government directives.



Fig. 3.96: Tourist chalets zone as part of the Forest facilities.

Objectives

The project aims to:
- Enhance the aesthetic and environmental appeal of Baghdad.
- Serve as a "green lung" for Baghdad, reducing air pollution and mitigating the impacts of toxic emissions.
- Improve quality of life by creating a large, sustainable green space that also provides recreational, leisure, and tourist facilities.

Components

The project includes:
- Amusement parks for adults and children.
- Walking and sports trails.
- Sports Courts (squash and football).
- Water Park.
- Shopping center.
- A five-star hotel resort featuring a 30-story skyscraper.
- Tourist chalets.

The initial phase of the project involved clearing the site of waste and unauthorized structures, with further phases focused on the construction of the forest areas and recreational zones. The project has cleared the site and is in the early stages of implementation. The park's first sections are expected to be completed by 2025, and the project will continue with the construction of the green forests and recreational facilities. Key elements like the water park, tourist chalets, and amusement parks are planned for later phases, with completion dependent on further development.



Fig. 3.97: Kids area within the forests.

Project Main Stakeholders

Owner/Developer (Public)
Mayoralty of Baghdad
Iraq's National Investment Commission (NIC)

Consultant/Designer
Imkanat

Funder
Iraq's National Investment Commission (NIC)

Contractor/Implementer
Imkanat

Project Scale and Location

The project is a large-scale urban park covering 12 million sqm. It is located between the Karrada and Zaafaraniya districts in Baghdad. Over 85% of this area will be devoted to the creation of sustainable forest zones, making it the largest urban forest in Iraq.

A Recreational and Touristic Destination

The park's recreational spaces will improve residents' quality of life by offering spaces for leisure, family activities, and sports. The park will serve as a new public space dedicated to outdoor activities and social gatherings. It also seeks to become a touristic destination with its hotel, chalets and commercial center.

From A Dumpster to an Urban Forest

The project aims to enhance the city's environment by addressing air pollution and providing green spaces for public use. The creation of sustainable forest areas will help mitigate the effects of toxic emissions and improve the overall environment of the capital.

* https://araburban.org/en/infohub/projects/?id=9754

Fig.3.96,3.97: retrieved from: https://www.facebook.com/photo/?fbid=896461529302725&set=pcb.896461582636053

50 Berbera Urban Development Project

Berbera, Somalia
[2020 - Ongoing]

Project Overview

The Berbera Urban Development Project addresses the need for municipal capacity development and improved urban systems in the coastal city of Berbera. It does so through the development of a park and a sanitary landfill.



Fig. 3.98: pedestrian sidewalks, one of the components of the Berbara Urban Development Project.

Objectives

The project aims to:
- Foster sustainable urban development,
- Enhance employment opportunities for women and youth,
- Upgrade berbera's waste management system

Components

The project consists of 3 primary Components:
- Landfill and Waste Management: the creation of a new landfill site and recycling facility, along with reforms to waste management systems that promote a circular economy approach. The focus is on minimizing waste, reusing materials, and spreading awareness of sustainability.
- Road Network and Street Infrastructure: the construction of a 20 km feeder road network and the development of internal roads to facilitate the transportation of waste and enhance connectivity within Berbera.
- Berbera Beachfront Development: create a vibrant public space, including pedestrian walkways, a market space, and a number of seating and gathering areas. It has 41 benches, 10 gazebos, 36 sunbeds, 3 swings, 35 recycling bins, 324 trees, and 203 solar-powered streetlights. It promotes nighttime activities and enhances the area's safety.



Fig. 3.99: Play areas and shaded spaces for local communities.

Project Scale and Location

The project's major interventions are focused on the beachfront and roads. Key locations include the new landfill site, 20 km of feeder roads, and the Berbera beachfront zone.

Project Main Stakeholders

Owner/Developer (Public)
Municipality of Berbera

Owner/Developer
UN-HABITAT

Consultant/Designer
UN-Habitat

Funder
European Development Fund (EDF)

Contractor/Implementer
UN-Habitat
Municipality of Barbara

Waste Management and Street Improvement

The project emphasizes a circular approach to waste management, proposing a new landfill site and a recycling facility to optimize resource use. Solar-powered streetlights, recycling bins and walkways improve the quality of the streets and beachfront.

Recreational Spaces for the Community

The beachfront development, featuring seating areas, sunbeds, and night lighting, provides safe and engaging environments for recreation and social interaction.

* https://araburban.org/infohub/projects/?id=3835

Fig. 3.98 and 3.99: EEAS, retrieved from: https://rb.gy/h2fwlm

H. Urban Farming

51 Qur'anic Botanic Garden

Al-Rayyan, Qatar
[2008 – Ongoing]

Project Overview

The Qur'anic Botanic Garden (QBG) is a public educational garden that showcases plants mentioned in the Qur'an and the native flora of Qatar. Its vision is "to become a global hub for plant resource knowledge, education, and research, promoting cultures' communication, environmental responsibility, and integrating preservation efforts with modern scientific achievements." The QBG project aligns the vision and goals of the Qatar National Vision 2030, and the Qatar Foundation (QF).



Fig. 3.100: Educational program on tree-planting activities for local communities.

Objectives

The project aims to:
- Promote knowledge about plants mentioned in the qur'an and sunnah, their associated botanic terms, and their care and preservation methods.
- Raise awareness about environmental conservation and sustainable gardening practices.

Components

The project involves:
- A garden that features the historic al kauthar houses, and nine key components with 61 plant species:
- Scent garden: offers a sensory experience with aromatic plants like citron, basil, roses, rosemary, jasmine, and plumeria.
- African plants garden: displays national trees from african countries, including moringa, eucalyptus, and neem.
- Desert garden: represents qatar's rawdat ecosystem, featuring wild plants like sidra, senna, camel's hay, qarz, and samara, enclosed by a protective belt structure called hizam.
- Sidra hill: a two-hill-shaped garden covered with perennial grass, sidra trees and arak shrubs.
- Botanical museum: showcases arab and islamic heritage through displays of heritage items, herbal samples, and traditional agricultural tools.
- Vine garden: covered with climbing plants like bougainvillea and grapes, providing shade.
- Water garden: designed like a bowl with emanating water fountains and waterfalls, surrounded by wetland.



Fig. 3.101: Communities involved in planting trees part of 'Ghars Campaign'.

- This goes along with two tram stations
- Sound garden: features japanese grass and trees like eucalyptus and acacia, with plants that produce rattling sounds.
- Play bowl: a mushroom-shaped play area for children surrounded by fig and olive trees.

The project also includes:
- An herbarium, seed bank, published and computer-recorded plant catalogue, laboratories, and sponsorship programs.
- Three main programs focusing on conservation, research, and education
- The conservation program uses in-situ and ex-situ techniques to protect qatar's biodiversity and environment.
- The research program includes national and international collaborations, fostering community engagement.
- The education program includes exhibitions, workshops, and fieldwork on plant conservation, horticulture, biotechnology, and medicinal properties.

Project Scale and Location

The medium-scale urban park is located in the Al-Rayyan district of Education City, near the Qatar Faculty of Islamic Studies. It Covers 400,000 sqm in Al-Rayyan, as part of Education City, making it a prominent public educational space.

Project Main Stakeholders

Owner/Developer (Public)
Qatar Foundation

Consultant/Designer
West 8
RHWL Architects
Meinhardt

Funder
Qatar Foundation

Contractor/Implementer
Qatar Foundation

Plant Conservation and Adaptation to Desert Conditions

The garden fosters research on plant conservation, Islamic heritage, and sustainable environmental practices, blending modern science with tradition. The project focuses on educational programs, exhibitions, and workshops on botanical science, Islamic studies, horticulture, and plant conservation. The garden utilizes drought-resistant plants, water-efficient irrigation systems, and soak ways to store stormwater for sustainability. The project enhances urban resilience by conserving native plant species, promoting environmental education, and encouraging sustainable land use practices.

* https://araburban.org/infohub/projects/?id=7989

Fig. 3.100 & 3.101: Qur'anic Botanic Garden website, retrieved from: https://qbg.org.qa/

52 Riyadh Indoor Vertical Farming

Riyadh, Saudi Arabia
[2022 – Ongoing]

Project Overview

The Riyadh Indoor Vertical Farming project is the largest automated indoor vertical farm in Saudi Arabia and the tallest in the MENA region. The project integrates commercial farming with an experiment center, exhibition areas and dining spaces, combining agricultural production with public engagement experiences. The project's main vision is to "create a profitable vertical farming business, provide jobs for the community, inspire a new generation of agriculture professionals, and feed the families living in the capital city from a sustainable source of clean, safe, and nutritious, fresh product".



Fig. 3.102: Construction works of the vertical farm building and warehouse.

Objectives

The project aims to:
- Provide a sustainable and efficient model of food production, showcasing urban farming of high-quality yields with advanced technology in a controlled environment.
- Align with the saudi 2030 vision, which aims to promote the kingdom's agriculture industry as part of its strategy to diversify the local economy.

Components

The project ivolves:
- A warehouse for indoor vertical farming containing:
- A total growing area of 20,000 sqm distributed across 19 layers
- A yield capacity of up to 2,200 kilograms of leafy greens daily
- Production of baby leaves, cabbage vegetables, full-size lettuces, and specialty crops such as edible flowers.
- Educational experiences for visitors (100 visitors daily as expected)
- Exhibition areas and dining spaces

* https://araburban.org/infohub/projects/?id=7994

Fig. 3.102 & 3.103: retrieved from: https://www.yeshealthgroup.com/news/mowreq-and-yeshealth-group-break-ground-on-riyadh-vertical-farm



Fig. 3.103: 3D visualization of the exterior facades of Mowreq's vertical farm building.

Project Scale and Location

The small-scale urban green development project comprises a warehouse with a built area of 4,500 sqm, reaching 15 meters in height. It is viewed as the largest automated indoor vertical farm in Saudi Arabia and the tallest in the MENA region.

Project Main Stakeholders

Owner/Developer
Mowreq
YesHealth

Consultant/Designer
Mowreq
YesHealth

Funder
Agricultural Development Fund of Saudi Arabia

Contractor/Implementer
Mowreq

Indoor Vertical Farming Knowledge Transfer

The project offers visitors educational experiences to understand indoor vertical farming and sustainable agriculture. The project space is designed to allow visitor to engage through exhibitions, education programs, and dining experiences while observing agricultural production taking place around them.

Automated Farming Technology

The farm utilizes cutting-edge agricultural technology automating the cultivation process from seeding to harvesting in a controlled environment.

Local Economic Diversification

The project provides profitable vertical farming business through high-quality yields with advanced technology, increases food production and provides new inspiring jobs for the community and generations of agriculture professionals, which aligns with Saudi 2030 Vision.

Promoting Environmental Sustainability and Resilience

The project promotes public awareness of sustainable agriculture through resource-efficient vertical farming technology. The project also reduces land use, lower water and energy consumption through high-tech vertical farming. The project aims to contribute to local food production and security by providing families living in the capital city access to a sustainable source of clean, safe, nutritious, and freshly produced food.

53 Agri Hub

Dubai, United Arab Emirates
[2022 – Ongoing]

Project Overview

Dubai Agri Hub is an urban farm project that combines eco-friendly dining, retail, entertainment, and educational opportunities with farmers' markets in a single location, all fully powered by renewable energy. It also aims to foster a green economy by creating over 10,000 jobs and becoming a key agritourist destination in Dubai's countryside. This project is part of a larger plan for Dubai's rural and suburban districts, aimed at transforming them to be among the most livable, enjoyable, and beautiful places in the world. Hence "transforming Dubai into a global agritourism destination and the world's largest hub of its kind".



Fig. 3.104: 3D illustration showing the Agri-Tech Institute for Research and Innovation.

Objectives

The project aims to:
- Provide "an innovative blueprint for decarbonized rural tourism hubs of the future".
- Play a crucial role in ensuring dubai's food security while offering local uae farmers the opportunity to sell products directly from their farms.

Components

The project features:
- Indoor buildings with an atrium and outdoor green spaces.
- A nature and heritage conservation center.
- An ecotourism center.
- An agri-tech institute, and a restorative wellness center.
- Spaces for local farmers.
- Eco-friendly shopping and leisure areas.
- A unique outdoor landscape for farming, camping, and lodging, among other entertainment activities.
- Green transit systems and 20 kilometers of dedicated cycling tracks.



Fig. 3.105: Agri Hub Dubai aerial rendering.

Project Scale and Location

The project is a large-scale urban green development aimed at transforming rural and suburban areas of Dubai. The project's mobility plan includes green transit systems such as direct bus services with electric buggy tracks from major stations to enhance connectivity to the center. Residents, local farmers and visitors are allowed convenient access to facilities.

Project Main Stakeholders

Owner/Developer
URB Planning

Consultant/Designer
URB Planning

Smart Technologies

The project includes smart infrastructure features such as automated indoor lighting and temperature adjustment based on occupancy, time of day, and exterior weather and light conditions. The hub utilizes embedded sensors for motion, temperature, noise, moisture, fire, and smoke detection to provide real time data to improve operational efficiency, safety, and security.

Agritourism Experience

Visitors and tourists will have a unique agricultural experience through in and outdoor activities such as farm tours, pick-your-own activities, farm stays, and cooking classes. The hub offers training and market access to local farmers. Residents will benefit from convenient access to facilities and fresh products.

Promoting Economic Growth

The project seeks to allow local farmers access to advanced technologies and expanded markets, enhancing their productivity and profitability. The project creates over 10,000 jobs. Businesses investing in agriculture and technology build on the idea of finding opportunities for growth and innovation, fostering their economic development.

Promoting Environmental Sustainability and Resilience

Through reducing carbon footprint through depending on renewable energy and efficient resource management to build green infrastructure and resilience. The project uses a green transit system with electric bus tracks. It employs a zero-waste management program and targets net zero emissions. It also includes onsite renewable solar farms to offset energy demand, implements 100% water recycling, and utilizes bio-saline agriculture techniques. The atriums are designed to be energy efficient, employing evaporative cooling systems that use 100% fresh air to maintain comfortable temperatures.

* https://araburban.org/infohub/projects/?id=7661

Fig. 3.104 & 3.105: retrieved from: https://urb.ae/projects/agrihub/

54 Dubai Food Tech Valley

Dubai, United Arab Emirates
[2021 – Ongoing]

Project Overview

The Dubai Food Tech Valley is a large-scale initiative in Dubai focused on the development of sustainable and innovative solutions in the food sector, uniting "the complete food and agriculture ecosystem" in one place. It is launched by the ruler of Dubai, Sheikh Mohammed bin Rashid Al Maktoum, in 2021. The project aligns with the National Food Security Strategy 2051 Objectives, focusing on diversifying the knowledge-based economy and achieving sustainability in food production.



Fig. 3.106: 3D rendering of production zones in Dubai Food Tech Valley.

Objectives

The project aims to:
- Enhance dubai's food security by tripling its food production through the establishment of an "integrated modern city" that acts as a global destination for the industry supported with "first-class infrastructure", with two primary functions.
- It aspires to serve as a hub for future clean, tech-based food and agricultural products.
- It acts as an incubator for researchers, entrepreneurs, startups, and industry experts involved in developing solutions that have the potential to shape the future landscape of the food industry.

Components

The project includes:
- Food Production Zone: Dedicated to modern farming technologies like vertical farms, hydroponics, and fish farms.
- Logistics Zone: Caters to the entire value chain, including trading, processing, packaging, and logistics.
- Business Park: Includes commercial offices, meetings, conference venues for administration, marketing, and sales operations of food and Agri-tech companies.
- Innovation and R&D Centre: Focuses on incubating new solutions and includes an academy for developing talents in food, agricultural sciences, and modern technologies.
- Gigafarm that will recycle up to 50,000 tons of food waste and grow two billion plants yearly.



Fig. 3.107: Dubai Food Tech Valley aerial rendering.

Project Scale and Location

The Dubai Food Tech Valley is a large-scale project that spans an area of 1,670,000 sqm and is being developed in the Warsan area of Dubai, situated between two main highways: Emirates Road and Ras Al Khor Road. Recently, Food Tech Valley signed an agreement with ReFarm TM at COP28 to construct a 0.08 square kilometers "GigaFarm" by 2026.

Project Main Stakeholders

Owner/Developer (Public)
Ministry of Climate Change and Environment

Owner/Developer
Wasl Properties

Consultant/Designer
Wasl Properties

Funder
Emirates Development Bank (EDB)

Contractor/Implementer
Wasl Properties
ReFarmTM

High-Tech Farming

The project uses modern farming technologies (vertical farming and water-saving technologies like hydroponics), controlled Environment Agriculture Systems (CEAs), and resource conservation methods with low greenhouse gas emissions. The project is planned to incubate new food production methods, focusing tech-based solutions like indoor farming and the construction of a GigaFarm.

Knowledge Exchange

The project includes a Business Park and an Innovation & R&D Centre, providing spaces for education, research, and knowledge sharing in food technology in a dynamic new Agri-Tech hub. This facilitates the exchange of knowledge and expertise in the food industry.

Economic Development

The project aims to create jobs by attracting startups and small and medium-sized enterprises (SME) and targeting 100 small and large international companies, and by providing opportunities for innovation in food production and setting up operations.

Sustainability and Resilience

The project seeks to enhance Dubai's food security by increasing local food production and fostering innovation in food systems. It promotes sustainable food systems by reducing greenhouse gas emissions, recycling food waste, and implementing farming technologies.

* https://araburban.org/infohub/projects/?id=7543

Fig. 3.106 & Fig. 3.107: Food Tech Valley, retrieved from: https://www.foodtechvalley.ae/

I. Rooftops

55 Dubai Reefs

Dubai, United Arab Emirates
[2021 - Ongoing]

Project Overview

The Dubai Reefs project is a marine reef development initiative to create the world's largest artificial reef, promoting marine restoration, coastal protection and sustainable ocean living. It enhances marine biodiversity while reducing carbon emissions, supporting sustainable fishing, and boosting food security. This is part of Dubai's broader strategy to achieve climate neutrality by 2050 aligns with the Dubai Economic Agenda D33, which seeks to position Dubai as a leading sustainable city. The project also aligns with the UAE National Framework for Sustainable Fisheries 2019-2030, launched by the Ministry of Climate Change and Environment (MoCCAE) and the Environment Agency – Abu Dhabi (EAD), aimed at increasing the country's food stock while reducing the impact of overfishing.



Fig. 3.108: The Marine Institute in Dubai Reefs.

Objectives

The project aims to:
- Mitigate the effects of climate change, focusing on reducing co2 emissions and protecting reefs, which are among the most diverse ecosystems on our planet.
- Enhance marine biodiversity.
- Support sustainable fishing.
- Boost food security.
- Capture over seven million tons of carbon annually while generating over 30,000 green jobs.

Components

The project involves:
- One billion corals and 100 million mangrove trees.
- Residential, hospitality, retail, educational & research facilities powered entirely by renewable energy, forming a "sustainable floating community for marine research, regeneration and eco-tourism".

The project also includes:
- The marine institute as a hub for marine biologists, scientists, and researchers.
- Residential and hospitality facilities include floating eco-resorts, eco-lodges, and a marine conversation center.
- Regenerative ocean farming as a blueprint for climate-friendly food production.



Fig. 3.109: The Dubai Reefs Master Plan and implementation phases.

Project Scale and Location

The large-scale green development project covers coastal areas of Dubai, spanning multiple segments of the coastline. It covers 600 million sqm of Dubai's waters for artificial reef deployment.

Project Main Stakeholders

Owner/Developer (Public)
Dubai Department of Economy and Tourism (DET)
Regulatory Committee on Fishing of Living Aquatic Resources in Dubai
Dubai Chambers, the Ports, Customs and Free Zone Corporation (PCFC)

Owner/Developer
Nakheel

Consultant/Designer
URB

Funder
Government of Dubai

Contractor/Implementer
Dubai Department of Economy and Tourism (DET)
Regulatory Committee on Fishing of Living Aquatic Resources in Dubai
Nakheel

Advanced Technology Implementation

The project uses innovative technologies for reef construction, including 3D printing, and renewable energy sources for all facilities.

Community-Focused Engagement

The project focuses on engagement of local communities in coral reef restoration and education initiatives, promoting awareness and participation in sustainable practices. The Marine Institute at the heart of the project serves as a hub for research, marine science, and conservation, enhancing skills and knowledge in marine biology and conservation.

Economic Development Through Green Jobs

The project provides employment opportunities and generates over 30,000 green jobs.

Sustainable Agricultural Practices

Through advanced technologies, Dubai Reefs seeks to become a blueprint for sustainable ocean living and climate-friendly food production. The project enhances food security and supports sustainable fishing practices. The project also focuses on mitigating climate change effects through improving marine biodiversity, reducing carbon emissions, and capturing over seven million tons of CO2 annually, with initiatives aimed at enhancing ocean health. It strengthens resilience of marine ecosystems and communities against climate impacts.

* https://araburban.org/infohub/projects/?id=7608

Fig. 3.108 & 3.109: retrieved from: https://urb.ae/projects/dubaireefs/

56 Roof Gardens

Manama, Bahrain
[2019 - ongoing]

Project Overview

Rooftop gardening, in Bahrain is an innovative pilot initiative to support urban agriculture and integrate vegetation into urban areas. The initiative aims to play a pivotal role in alleviating the increasing heat and improving air quality.



Fig. 3.110: Hanging pots and vertical gardening on one of the residents' roof.

Objectives

The project aims to:
- Develop green roofs to integrate vegetation in urban spaces.
- Reduce urban heat.
- Improve air quality.
- Create livable, multipurpose spaces.
- Foster creative agricultural practices among households.

Components

The project involves Rooftop gardens across urban areas in Bahrain, and especially in Manama, which include:
- Small fruit trees (e.g., figs, almonds)
- Vegetables
- Green roof designs
- Multi-purpose livable rooftop spaces.



Fig. 3.111: The rooftop garden of Mrs. Shaker.

Project Scale and Location

The city-wide project introduces urban rooftops across Bahrain, particularly in densely populated areas where rooftop spaces are neglected or underutilized.

Project Main Stakeholders

Owner/Developer
Households/residents

Consultant/Designer
United Nations Human Settlements Programme (UN-Habitat)
United Nations Food and Agriculture Organization (FAO)
Bahrain's Ministry of Municipalities Affairs and Agriculture
National Initiative for Agricultural Development in Bahrain (NIAD)

Funder
Households/residents

Contractor/Implementer
Households/residents

Urban Agriculture and Greening Techniques

The project incorporates a variety of techniques for sustainable rooftop gardening including efficient irrigation systems reduce water usage, enhanced techniques to improve soil conditions for urban agriculture, strategic plant selection promotes biodiversity in urban settings, and composting through organic waste repurposing. Participants also grow vegetables, small fruit trees (e.g., figs, green almonds), and ornamental plants, contributing to household-level food production.

Collaboration and Knowledge Sharing

The initiative evolved through several phases, starting with experiments like pepper seedlings. Participants enhanced their gardening skills through research, peer conversations, and online resources. It emphasizes capacity building, engaging households to take ownership of the greening process, and fostering public interest in environmentally friendly approaches.

* https://araburban.org/infohub/projects/?id=8515

Fig. 3.110 & 3.111, UNIC Manama, retrieved from: https://shorturl.at/Hd4Mx

57 Rooftop Urban Farming Project in Helwan

Cairo, Egypt
[2018 - 2021]

Project Overview

Helwan district in the capital city of Cairo, Egypt, with dense urban fabric and minimal green or open spaces. The rooftops of buildings are often cluttered in old trash. In 2018, a Cairo based company Schaduf initiated an urban agriculture project in Helwan and its surrounding informal settlements.



Fig. 3.112: Training of community members in Helwan.

Objectives

The project aims to:
- Enhance the environmental quality of the neighborhood
- Provide socio-economic benefits to low-income communities in helwan.

Components

The project consists of:
- 500 Urban farms on roofs.
- Training services for the community.
- Most commonly used plants were lettuce and other leafy greens.
- Each family was provided with 2 roof garden setups, that is, a total of 420 plants.

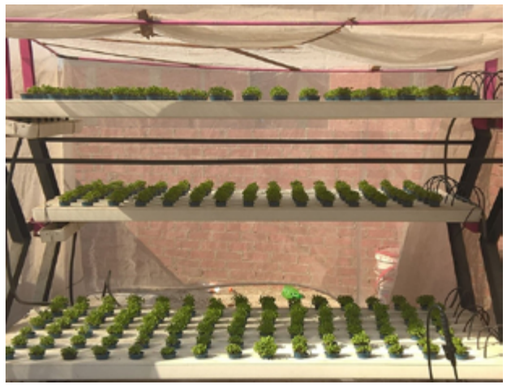

Fig. 3.113: Rooftop plantation in Helwan.

Project Scale and Location

The medium-scale project involves 500 rooftop gardens across the neighborhood and its surrounding informal settlements.

Project Main Stakeholders

Owner/Developer
Schaduf

Funder
Drosos

Contractor/Implementer
Schaduf

Water-Efficient Plantation Technique

The plantation technique was based on hydroponics, a method that enables above ground plantation, requires minimal water and no soil and is applicable in the case of rooftop gardening.

Agricultural Capacity Building

The project included training services provided to 850 families by teaching skills in seed germination, plant care, and harvesting crops twice a month. The project includes a focus on women and girls, with training sessions specifically targeting girls between the ages of 9 and 15.

Sustainable Urban Hydroponic Farming

The hydroponic farming technique used in this project reduces water consumption and creates new green spaces in a densely populated, low-income area, helping to mitigate urban environmental degradation. The project improved environmental quality through the introduction of green spaces on rooftops, alongside socio-economic benefits from increased food production and potential income generation. The microcredit schemes also help sustain the farming model. The project seeks resilience against climate change impacts by promoting local food production with minimal water use, and reduced dependence on external food sources.

* https://araburban.org/infohub/projects/?id=4041

Fig. 3.112 & 3.113: retrieved from: https://schaduf.com/projects/helwan-project/#gallery-6559b097d535d-7

58 Martyr Azmi Al-Mufti (Al-Husn) Camp Rooftop Farms

Irbid, Jordan
[2016 - 2017]

Project Overview

Officially known as Martyr Azmi Al-Mufti camp, Al-Husn camp is one of the emergency camps established in 1968 for Palestinian refugees. The project originates from the result of a Camp Improvement Plan (CIP) which provided Community Based Organizations (CBO) the opportunity to develop their projects



Fig. 3.114: The roof garden at the vocational training center.

Objectives

The project aims to:
- Reintroduce vegetation into the camp.
- Create possibilities of self-sufficiency and activate the roof as a productive space.
- Cultivate environmental and cultural benefits within the camp.

Components

The project involves:
- 34 Greenhouses for rooftop farming on both private residences as well as public buildings.
- Training sessions and lectures.
- Steel frame enveloped in a plastic sheet in a “flexible plug system”.
- Recycled materials such as discarded water containers and jerrycans.
- Automated drip system.
- Water collection tank.



Fig. 3.115: Interior view of the rooftop greenhouse in Al-Husn camp in Jordan.

Project Scale and Location

The medium-scale project is located in Al-Husn Palestinian refugees camp, with an approximate population in 2023 over 28,000. The interventions for public buildings extended beyond the boundaries of the camp in an attempt to integrate the “inside and outside of the camp”.

Project Main Stakeholders

Owner/Developer
Al Karmel Club

Funder
Gesellschaft für Int. Zusammenarbeit (GIZ)
German Federal Ministry for Economic Cooperation and Development (BMZ)

Contractor/Implementer
Al Karmel Club

Innovative Agricultural Practices

The project uses recycled materials (water containers, jerrycans), an automated drip irrigation system, lightweight soil mixtures (peat moss or imported soil from Finland), flexible steel frame design and plug system for easy greenhouse installation and movement.

Capacity Building for the Local Community

Training sessions and lectures were provided to participant families on greenhouse management and farming techniques.

Community Engagement in Food Production

The project targets a diverse population within the refugee camp, involving a broad segment of the community in food production. It features participation from local families who received training to manage the rooftop greenhouses.

Sustainable Urban Agriculture

The project incorporates rooftop farming, recycled materials, and efficient water management systems to ensure the sustainability of the project. It improves food security, creates productive green spaces, and provides an opportunity for self-sufficiency and small-scale agricultural production. The project reintroduces green cover to the camp and utilizes local knowledge to promote resilience in urban farming.

* https://araburban.org/infohub/projects/?id=4055

Fig. 3.114 & 3.115: retrieved from: https://library.fes.de/pdf-files/bueros/amman/15779.pdf

59 Rooftop Farming Program in Palestinian Refugee Camp

Saïda, Lebanon
[2018 - Ongoing]

Project Overview

The Rooftop Farming program is an urban agriculture project led by Nashet Social Cultural Association in two Palestinian refugee camps in Lebanon. This initiative addresses the lack of agricultural land in a densely populated and marginalized settlements through organic farming activities on rooftops. The project features two types of farming activities: cultivation in plastic pipes inside greenhouses and cultivation in half-plastic barrels outside the greenhouses.



Fig. 3.116: Training and seedings distribution phase.

Objectives

The project aims to:
- Economically and socially empower palestinian women by creating job opportunities and generating income.
- Reconnect palestinian refugees with their agricultural heritage.
- Improve the environment through urban agriculture while ensuring access to healthy food.

Components

The project involves:
- Two types of organic farming activities:
- Cultivation in plastic pipes inside greenhouses
- Cultivation in half-plastic barrels outside the greenhouses.

The first phase was a pilot project in ain el hilweh camp, where 52 pipes were planted inside 10 plastic greenhouses. Each greenhouse contains seven pipes, and each pipe holds seven seedlings.
- Training sessions for interested palestinian families in agricultural activities.
- Plastic greenhouses, irrigation systems, suitable soil, and appropriate seeds and seedlings.
- Chosen crops include beans, cucumbers, tomatoes, peppers, bell peppers, eggplants, and zucchini.



Fig. 3.117: Farming in half barrels outside the greenhouses.

Project Scale and Location

The Rooftop Farming program is a medium-scale urban agriculture project that consists of organic farming activities on rooftops in two Palestinian refugee camps in Lebanon: Ain El Hilweh in Saida City, and Rashidieh in Tyr City. The beneficiaries extended to over one hundred families across both camps, each benefiting from an agricultural greenhouse.

Project Main Stakeholders

Owner/Developer
Al Karmel Club

Funder
Gesellschaft für Int. Zusammenarbeit (GIZ)
German Federal Ministry for Economic Cooperation and Development (BMZ)

Contractor/Implementer
Al Karmel Club

Low-Cost Infrastructure

The farming activities consists of recycled materials (plastic pipes, barrels and greenhouses) to plant crops and seeds. The crop selection is based on crop types that require low maintenance, are less susceptible to diseases, are reasonably priced, and offer higher yields than other crops.

Organic Farming Process and Knowledge Transfer

The farming process follows the principles of organic agriculture, requiring beneficiaries to avoid using any chemical substances throughout the process. Palestinian families and particularly women received training sessions on seasonal crop cultivation, plant care, disease prevention, and other essential agricultural practices. The project includes providing seedlings seasonally, marketing the crops surplus, and ensuring that the owners of these greenhouses benefit financially.

Better Environmental and Economic Conditions

In accordance with the project's Objectives, marginalized communities are economically and socially empowered through accessing new job opportunities, ensuring income from selling crops and reconnecting with their agricultural heritage by practicing farming activities. The camp environment is seen to be improved through rooftop farming while ensuring access to secured local food. This project also aims to reduce urban heat and the use of high-cost agriculture infrastructure and materials.

* https://araburban.org/en/infohub/projects/?id=7865

Fig. 3.116 & 3.117, Nashet.org, retrieved from: https://nashet.org/na-18440.html

60 Rooftop Gardens Project

Ramallah, Palestine
[2021 - Ongoing]

Project Overview

The Rooftop Gardens project is an urban agriculture initiative led by the American Near East Refugee Aid (ANERA) Organization in the West Bank and Gaza Strip as parts of the Palestinian territories. This initiative addresses food insecurity in densely populated areas that lack adequate agricultural land by implementing rooftop farming activities. The project involves establishing rooftop gardens on family homes, complete with a hydroponic planting system that optimizes water usage It is worth noting that Gaza City is experiencing dire circumstances due to war and destruction, which has led to the discontinuation of some projects.



Fig. 3.118: A photo shows the technical support from the Anera Team.

Objectives

The project aims to:
- Promote food self-sufficiency and combat food insecurity by enabling vulnerable families to grow their own seasonal crops.
- Generate income by selling surplus crops for palestinian families.
- Implement more than a thousand rooftop gardens across lebanon, jordan and palestine.

Components

57 greenhouses were installed across different neighborhoods in the Gaza Strip. The project involves four phases:
- Phase 1: selection of participating families, evaluation of their rooftops, and providing them with necessary materials, seeds, and seedlings.
- Phase 2: building customized rooftop greenhouses that fit the available space.
- Phase 3: providing roof insulation and prepare wicking beds in barrels or similar containers, layered with water at the bottom and soil on top.
- Phase 4: training workshops and ongoing technical support to the selected families, sharing expertise and best practices in crop maintenance, plant care, and other essential agricultural techniques.



Fig. 3.119: Farming in half barrels in Gaza Strip.

Project Scale and Location

The region-scale project spans over 102 rooftops to install customized greenhouses across Palestine (57 in Gaza, 49 rooftop gardens installed in 2021, 15 in West Bank, and 5 in Jalazone Camp) with plans for expansion to more than 1,000 rooftop gardens across Lebanon, Jordan, and Palestine.

Project Main Stakeholders

Owner/Developer
Anera

Consultant/Designer
Anera

Funder
Anera

Contractor/Implementer
Anera

Innovative Agricultural Techniques

The project uses hydroponic planting systems for efficient water use, rooftop insulation, and wicking beds for optimized plant growth on rooftop spaces.

Agricultural Capacity Building

The project leader 'Arena' provides training workshops and technical support to families, covering crop maintenance, plant care, and hydroponic techniques. Families are directly involved in the project, receiving training and managing their rooftop gardens for food production. The project promotes inclusivity targeting vulnerable populations in urban and refugee settings, allowing wide participation from local communities.

Economic Development

The project provides an additional income source for Palestinian families by allowing them to sell surplus crops.

Promoting Environmental Sustainability and Resilience

The project seeks to enhance food security and promotes resilience to climate change through sustainable water use, local food production, and reduced reliance on external food sources.

* https://araburban.org/infohub/projects/?id=7936

Fig. 3.118: Anera, retrieved from: https://www.anera.org/stories/sabah-the-retired-jalazone-teacher-turned-gardener/

Fig. 3.119: Anera, retrieved from: https://www.anera.org/blog/rooftop-gardens-program-in-palestine-lebanon-and-jordan/

CONCLUSION AND RECOMMENDATIONS

Pathway inside a landscaped urban park, Dubai, UAE,
source: https://www.istockphoto.com/photo/high-quality-photo-walkway-lane-path-with-green-decoration-trees-and-palms-in-garden-gm1440003829-480106111



CONCLUSION

The analysis of the selected 60 urban greening projects in Arab cities offers key insights into the way cities in the region are leveraging greening initiatives to address a variety of environmental and socio-economic objectives. These projects demonstrate a growing acknowledgment of the importance of greening, moving beyond its historical perception as a secondary concern to becoming a central element of urban agendas. This shift reflects a broader trend where public actors, NGOs, and even private sector entities increasingly recognize the multifaceted value of urban greening. These initiatives address not only environmental sustainability but also resilience, economic development, and social inclusivity. Importantly, this focus extends beyond mere rhetoric, with concrete project components often reflecting these diverse goals.

At the governance level, the data reveals a clear trend in urban greening projects towards multistakeholder involvement, with both public-private partnerships and collaborations with local and international organizations driving these initiatives. These collaborations are most commonly seen in afforestation efforts, green infrastructure developments, and urban park projects, as these initiatives typically encompass a blend of environmental, social, and economic objectives, necessitating coordinated action across multiple sectors. These governance structures often emphasize community engagement, spanning from awareness campaigns to active involvement in project implementation, such as tree planting or rooftop gardening. 18 projects consider community engagement in their core objectives reflecting a sense of ownership and resilience among residents, which is seen crucial for the longevity and development of urban greening projects on the long run. At the environmental level, critical issues such as climate adaptation, biodiversity enhancement, and pollution reduction have been addressed by many projects in the sample. 6 projects focus on using innovative technologies to maximize sustainability, while 12 projects integrate renewable energy, and ecosystem-based approaches indicating a forward-looking approach to sustainable urban development. 30 projects involve planting campaigns, afforestation efforts, and the creation of green infrastructure aiming to improve air quality, reduce urban heat islands, and ensure better stormwater management. Additionally, 5 initiatives focus on capacity building through technical workshops, training sessions, and knowledge-sharing programs, ensuring that local administrations and communities possess the skills needed for long-term maintenance and expansion. Notably, 7 projects prioritize women's participation, offering opportunities for economic empowerment and leadership in greening efforts. At the economic level, 29 projects explicitly incorporate economic objectives, while others, though not explicitly focused on economic outcomes, indirectly contribute to economic growth through urban improvements that attract tourism, business investment, and job opportunities. Projects with leisure and commercial components often drive local entrepreneurship, while advanced farming technologies in urban agriculture enhance food production and provide employment. By fostering synergies between economic, social, and environmental goals, urban greening projects contribute to inclusive growth and sustainable urban development.

However, while these trends are encouraging, literature on urban greening projects put emphasis on challenges and considerations that are worth attention. Urban greening projects often attract significant visibility and political interest, but there is a possibility that initial enthusiasm could wane, particularly if competing municipal priorities arise. This could lead to project downsizing or abandonment. In marginalized neighborhoods, greening initiatives may be perceived as merely symbolic, potentially overshadowing deeper socio-economic challenges that require more substantial interventions. Additionally, greening projects may inadvertently contribute to gentrification, with rising real-estate values potentially causing displacement of lower-income groups. In extreme cases, private-sector involvement could cause land reallocation, turning public or communal spaces into profit-driven ventures. Furthermore, the financial sustainability of many projects remains a concern, as they often depend on external funding, leaving questions about long-term operational and maintenance costs. The broad scope and the methodology of this study did not allow to investigate these challenges in the 60 projects of this report; however, they should not be underestimated if greening is to become a driver of urban sustainability and resilience in Arab cities.

The broader significance of greening initiatives in Arab cities cannot be overstated. They are not only transforming urban landscapes but also advancing the region's sustainable development and resilience. To maximize their impact, it is crucial to address these challenges, ensure equitable access and benefits, and empower stakeholders with the resources and knowledge needed to sustain these efforts. Urban greening represents a critical pathway for Arab cities to navigate the complex challenges of the 21st century while enhancing the quality of life for their inhabitants.

Recommendations

In light of the findings from the analysis of the 60 urban greening projects across the Arab region, several recommendations are proposed to enhance the effectiveness and sustainability of such projects. These recommendations address key areas such as institutional strengthening, governance, environmental management, and economic development, aiming to foster a more coordinated, impactful, and inclusive approach to urban greening initiatives. By aligning efforts across these dimensions, urban greening can be better integrated into the fabric of urban development, contributing to healthier, more resilient, and sustainable cities in the region. The following recommendations are outlined to guide future efforts at:

The institutional and governance level:

- Enhance Institutional Capacity: Strengthen the capacity of local and regional institutions to manage and scale urban greening projects by providing specialized training for urban planners, environmental managers, and stakeholders involved in green infrastructure development.
- Foster Collaborative Platforms: Establish cross-sectoral platforms to ensure coordination between governmental bodies, civil society organizations, academia, and the private sector, facilitating joint initiatives that integrate urban greening into broader urban development policies.
- Promote Multilevel Governance: Strengthen the role of municipal governments by empowering them with more decision-making authority and resources to implement urban greening projects, while ensuring that national and local policies align with green urban development goals.
- Engage Communities in Decision-Making: Prioritize community engagement through participatory governance models to involve local populations in planning, decision-making, and monitoring processes for urban greening, ensuring projects meet local needs and expectations.
- Implement Policy and Regulatory Support: Governments should develop clear and supportive policies, standards, and regulations that promote urban greening, such as incentivizing green roofs, sustainable landscaping, and the integration of nature-based solutions in urban planning.

The environmental level:

- Increase Investment in Green Infrastructure: Governments should prioritize green infrastructure investment, focusing on projects that improve biodiversity, reduce urban heat islands, enhance air quality, and address urban stormwater management through nature-based solutions.
- Promote Sustainable Land Use Practices: Encourage the adoption of sustainable land use practices that integrate green spaces into urban design, such as urban parks, green corridors, and community gardens, ensuring that environmental considerations are a priority in urban development.

The economic level:

- Stimulate Green Economic Opportunities: Foster the development of a green economy by promoting green entrepreneurship, especially within the context of green building design, sustainable landscaping, and urban agriculture, to create new job opportunities and stimulate economic growth.
- Leverage Public-Private Partnerships: Develop financial models that encourage private sector investment in urban greening initiatives through public-private partnerships, tax incentives, and funding mechanisms that make green projects economically viable and scalable.

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