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THIRTEENTH ISSUE
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GREEN INFRASTRUCTURE

TOWARDS AN INTEGRATED GREEN SYSTEM IN ARAB CITIES

THE INTERVIEW
His Excellency the Acting Director General of Tunis Municipality, talks about the city's efforts in implementing Green Infrastructure

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THIRTEENTH ISSUE

GREEN INFRASTRUCTURE
TOWARDS AN INTEGRATED GREEN SYSTEM IN ARAB CITIES

Front Cover

King Abdullah Gardens, Riyadh, Saudi Arabia
Source: Riyadh Region Municipality

MUDUNUNA

Beirut, Lebanon

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EDITORIAL

THE ROLE OF URBAN GREENING INITIATIVES IN SHAPING THE ENVIRONMENTAL FEATURES OF ARAB CITIES

By Dr. Ziad Alameddine- Editor in Chief

Nowadays, the ecological necessities of Arab cities differ from what was once perceived as a matter of aesthetics and recreation. As cities expand faster than nature can keep up, water shortages worsen the toll of climate change becomes more apparent. In this context, green areas are emerging as some of the best, yet frequently overlooked, solutions for the convergence of environmental, social, and climatic pressures.

For many years, urban development has been achieved by prioritizing dense development alongside transportation systems that do not account for pedestrian circulation or nature. In many urban centers across the Arab region, gardens and public open spaces have been seen as "things to include" rather than a "must" for the viability of urban development.

This result is becoming evident as polluted air increases, leading to urban heat islands that cause extreme suffering to communities in the summertime. Urban greening directly addresses climate change and other related issues as a tool of adaptation and resilience. Another major component of urban greening is its integral role in the ongoing evolution of climate response plans. Climate change is becoming an ever-increasing global issue, and as such, Arab cities are more likely to be directly impacted than any other country in the world.

When reliable, established green spaces are a part of the urban development process, they provide a source of cool and comfortable environments for people to live in. Also, established green spaces provide a source of sustainable energy through solar panels, and they create places for people to meet and interact regularly. People who use established green spaces have lower levels of chronic heat stress, particularly the elderly, young children, and outside workers, such as maintenance or street repairmen.

In addition to providing communities with a better quality of life, giving residents in compact neighborhoods access to green spaces also promotes feelings of belonging. Access to green spaces has been shown to increase walking, social integration, and a sense of community. In densely populated neighborhoods with no private outdoor areas, the only public green areas become the hubs of the communities. Green spaces can be places where children play, neighbors interact, and the informal economy is thriving.

Thus, urban greening offers Arab cities the opportunity to create an urban experience that is authentic to both the human and the environment. Urban greening is a means to create a healthy and tranquil city for everyone living in it, and thus, the creation of a healthy environment.

In this context and in his interview, H.E. Eng. Abdullah bin Mahdi Al-Jali, Mayor of the Aseer Region Municipality, discusses the municipality's priorities, accomplishments, and its ambitious vision to advance and sustain urban tourism.

In this context, this issue of Mudununa meet with H.E. Eng. Lotfi Dachraoui, Acting Secretary General OF the Municipality of Tunis, who shares his vision for the city's green infrastructure projects and reflects on how these initiatives have improved residents' quality of life and contributed to more vibrant, inclusive, and greener neighborhoods.

In 'Urban Insights', H.E. Eng. Mohammed A. Al-Wabely, Assistant Deputy Mayor for Iconic Projects at Riyadh Municipality, outlines the vision for King Abdullah Gardens as a project that goes beyond conventional planning. It seeks to create a truly livable urban space—one that enriches quality of life before enhancing visual appeal. Dr. Anna Grichting Solder, meanwhile, underscores the need to shift from green to blue infrastructure across arid regions, drawing on Doha's experience as a compelling example. In a related contribution, Ms. Eleanor Mohammed, AUDI's Advisory Council member, argues that green infrastructure offers a powerful response to the pressures of urban growth. Yet its effectiveness depends not only on innovative design, but more critically on the presence of modern urban planning and governance systems, particularly in small and medium-sized cities, which form the foundation of the world's urban future. Moreover, this issue features a review of four toolkits, developed by international organizations, each underscoring the importance of knowledge sharing in green infrastructure to support municipalities in understanding the processes required to design and implement effective strategies that enhance quality of life and advance sustainable development.

The newsletter also showcases a range of landmark projects, strategies, and leading initiatives undertaken by Arab cities in the field of green infrastructure. These include projects in Jeddah, Muscat, and Dubai that have successfully balanced environmental rehabilitation with urban development priorities and active community engagement.

It further highlights the experiences of Tunis and Doha as inspiring models of how green streets and sustainable mobility corridors can respond to both environmental and social challenges. In addition, the newsletter sheds light on efforts to restore urban ecosystems in Riyadh, Abu Dhabi, and Kuwait, illustrating how comprehensive greening programs have driven tangible improvements in local microclimates.

This issue also reviews projects in Muscat and Alexandria, demonstrating how rehabilitated coastlines can become effective tools for achieving environmental and social benefits while strengthening the resilience of coastal urban areas. It addresses green building initiatives in Beirut and Cairo, emphasizing their role in transforming roofs and facades into multifunctional urban assets that reduce thermal stress, as well as the importance of urban forests in reshaping cities such as Amman and Casablanca.

Mudununa showcases AUDI's most recent initiatives and achievements at the local, regional, and international levels. It highlights AUDI Director General's participation in a dialogue session organized by the International Society of City and Regional Planners (ISOCARP) in Riyadh, as well as a separate dialogue session with the Al-Futtaim Group, and the signing of a cooperation agreement with the Saudi Fund for Development.

It also covers key diplomatic engagements, including the reception of the Ambassador of the Islamic Republic of Mauritania to the Kingdom and the Secretary General of the Middle East Green Initiative. In addition, AUDI Director General met with the former Mayor of Stockholm to explore opportunities for Arab European collaboration and held meetings with delegations from the Hannover Economic Development Agency (hannoverimpuls GmbH) and the Royal Town Planning Institute (RTPI). AUDI also hosted the second periodic meeting with Communications and Partnerships Officers, which brought together more than 55 representatives from member cities across Arab region. Moreover, Mudununa highlights AUDI's participation in the Cities of the Future workshop in the Hashemite Kingdom of Jordan, reinforcing its role as a knowledge partner in supporting Arab cities and promoting sustainable urban development.

INTERVIEW

ACTING SECRETARY GENERAL OF THE MUNICIPALITY OF TUNIS

ENGINEER LOTFI DACHRAOUI

shares insights on the city's latest green infrastructure projects and its vision for a sustainable future

Eng. Lotfi Dachraoui currently serves as Acting Secretary General of the Municipality of Tunis, overseeing the management of Tunis Municipality's affairs, blending engineering expertise with administrative leadership. He graduated in Mechanical Engineering from the National School of Engineers of Sfax in 1987 and has over 35 years of experience in both public and private sectors, with a focus on environmental management and municipal services.

He previously held leadership roles at Ariana Municipality, managing equipment, sanitation, and waste systems, and led multiple senior leadership training workshops. A certified insurance expert and member of the Engineers' Council, he has participated in national initiatives and international programs. Today, he directs the day-to-day management of urban services while coordinating efforts to ensure the capital's sustainable development.

Engineer Lotfi Dachraoui

Tunis has become a leading regional example in transforming neglected public spaces through participatory greening projects. These initiatives expand the city's green areas, reduce the impact of high temperatures, and enhance the quality of life across both historic and modern neighborhoods. In this issue of Mudununa, published by the Arab Urban Development Institute (AUDI), we spotlight Tunis' pioneering approach to green infrastructure in urban areas. The city focuses on creating shaded spaces, enhancing biodiversity, and integrating nature-inspired solutions into urban planning and public space design. In this interview, H.E. Mr. Lotfi Dachraoui, Acting Secretary General of the Municipality of Tunis, shares how practical projects have transformed the city's vision into reality—improving residents' quality of life and fostering greener, more vibrant, and inclusive neighborhoods.

How does green infrastructure enhance residents' well-being, visitor comfort, and reduce heat and flooding across Tunis?

In today's urban reality, green infrastructure is no longer a luxury or an afterthought—it is a vital component of urban well-being. Streets lined with shade, green spaces integrated close to residential areas, and cleaner air all contribute to higher comfort levels and a better quality of daily life for residents and visitors alike. Such improvements make city living more pleasant and enjoyable, and their benefits are felt every moment of the day.

The most immediate and noticeable impact is heat. In Tunis, long, hot summers make densely built neighborhoods with concrete and asphalt roads unbearably warm. Trees and shaded areas play a crucial

role in transforming this daily experience. Even a small green space can noticeably lower temperatures, providing tangible relief to residents. Consultations conducted during the development of the "Tunis City Development 2050" strategy confirmed this, with the vision of a "clean, healthy, and green city" emerging as the top priority in public opinion surveys.

The second key issue is rainwater management and flooding. Whenever heavy rains hit Tunis, the vulnerability of urban areas becomes evident, with blocked streets, waterlogged neighborhoods, and strain on infrastructure. Much of this problem arises from the scarcity of permeable surfaces and natural spaces that can absorb water. This underscores the crucial role of green infrastructures such as permeable pavements, natural basins, and designated drainage pathways—which act like a sponge, reducing the impact of flash floods and protecting the city from sudden inundations.

What truly affects residents is the everyday comfort and well-being that green spaces bring, making the city more human-centered and connected to its people. Pedestrian walkways, playgrounds, and resting areas for the elderly are more than just amenities—they are essential spaces that foster a positive and balanced relationship between residents and their urban environment. In a major city like Tunis, these elements are not mere details but fundamental to improving the overall quality of life.

There is also a symbolic dimension that carries great significance. From the moment someone enters a green city, they immediately perceive a well-maintained, cared-for environment, which enhances the city's image and attractiveness. Green infrastructure is therefore much more than simply creating green spaces—it sends a clear message that the city values and cares for its residents. In short, green infrastructure not only improves the urban climate and reduces flood risks but also gives residents and visitors a sense of living in a more comfortable, balanced, and less stressful environment.

Parc duBelvédère,Tunis

What is the central rôle of the municipality of Tunis in leading urban greening, and how are efforts coordinated across departments, transport, services, and heritage sectors?

This issue lies at the very heart of our responsibility, as it touches the essence of leadership and governance in municipal work. In Tunis, greening is not viewed as a peripheral or cosmetic initiative, but as a strategic decision embedded within our comprehensive vision of the city. As a historic capital, densely populated and vibrant, Tunis demands balanced solutions that reconcile urban growth with the preservation of natural spaces. This is where the municipality plays a central role, bringing a holistic perspective and daily engagement with the realities of neighborhoods and the aspirations of its residents.

The first key point is planning. In recent years, we have focused on shaping a clear vision through the Tunis 2050 Development Strategy, which has reinforced our shared understanding that discussions about the city of the future must center on integrating green infrastructure into all major urban projects. Citizens have made this clear during consultations, expressing a strong desire for a cleaner, healthier, and greener city.

However, this leadership role cannot be exercised in isolation, which highlights the importance of an effective coordination mechanism. Urban greening is inherently a multi-sectoral challenge that requires collaboration across various stakeholders. In this role, the municipality acts as a "conductor," aligning the priorities of multiple sectors. Coordination with public service and utility providers—such as electricity, water, and sanitation companies—is crucial to protect green infrastructure during maintenance work and to ensure water resources for irrigation are used efficiently and sustainably.

In historical neighborhoods, we work closely with heritage authorities to integrate green projects, as demonstrated by the "Al-Kharba" project, while safeguarding the archaeological and cultural value of these sites. Equally important is partnering with local

communities and residents, whom we consider strategic allies in planning, implementation, and maintenance. We also collaborate with international partners, such as the Arab Urban Development Institute, to exchange expertise and receive technical support, ensuring that our green initiatives are embedded within a comprehensive and sustainable vision for the city of Tunis.

In short, the municipality today serves as a "grand coordinator." We do not act in isolation but bring together a wide range of stakeholders, all working toward a shared goal: making the city of Tunis more livable, more balanced, and in greater harmony with its natural environment.

Which green projects have recently been implemented or are underway, and what early impacts have been observed in target neighborhoods?

In recent years, greening has evolved from a theoretical idea into concrete, on-the-ground projects that have directly improved the daily lives of residents. Perhaps the most notable achievement is the shift in perspective: urban development is no longer seen merely as concrete and sidewalks, but as an integrated system that combines shade, greenery, comfort, and a vibrant community life.

The "My Dignity-Karamti" project is a prime example, focusing on creating healthy, high-quality public spaces designed specifically for girls, women, and children in the densely populated Helal neighborhood. Known for its crowded streets and lack of comfortable communal areas, Helal benefited from simple yet impactful interventions: planting trees, adding shade spots, providing seating, and establishing safe pedestrian pathways.

The results were immediately visible—women and children began using these spaces far more than before, as the area transformed from a mere passageway into a welcoming, livable environment. This embodies the essence of greening: reclaiming public spaces for residents and making the city more vibrant, inclusive, and humane.

What lessons have you drawn from this experience, and are there plans to replicate it elsewhere?

The participatory greening experience marked a turning point in our approach to public spaces. Although we have implemented green projects for many years, this initiative revealed a simple but powerful truth: involving residents in the planning process goes beyond planting trees—it builds a renewed relationship between people and the places they share.

The first lesson we learned is that the Old City still holds tremendous potential for renewal. Despite its narrow alleyways and aging infrastructure, there are always ways to reconnect people with nature—through small interventions, shaded corners, and simple touches of greenery that bring comfort and warmth to daily life.

The second lesson is that community participation is not just a technical concept; it is essential to the success of any greening initiative. Residents were not merely beneficiaries but true partners in identifying local needs, fostering a shared sense of ownership and a stronger commitment to protecting and maintaining these spaces.

The third lesson is that the environment is not a luxury in the Old City. On the contrary, it plays a vital role in reducing high temperatures, creating places to rest, and restoring safety and social life to neglected areas. In dense and crowded settings, residents experience firsthand the tangible benefits of shade and greenery.

Regarding future expansion, we have a clear vision. We see the Al-Kharba experience as a starting point for a broader journey to replicate its success. The lessons learned now form the foundation of our strategy, and we are preparing the necessary studies to extend the participatory approach to other neighborhoods, tailoring it to the unique characteristics of each area.

Our aim is for the greening movement to spread across different parts of Tunis—not as isolated projects, but as the beginning of a long-term process that restores balance between urban form and nature. Today, we are fully convinced that if greening can succeed in the heart of the historic city, it can succeed in any neighborhood. This belief guides our planning and drives our future expansion efforts.

What are the main challenges in maintaining green spaces over time, and are there partnership or co-maintenance models with communities or private sector actors?

Maintaining green spaces is one of the most difficult tasks for municipalities. Creating public spaces is only the beginning; the real challenge is ensuring they remain clean, healthy, and attractive over time. Plants require continuous care, including monitoring, watering, pruning, and cleaning. In a large city like Tunis, these responsibilities are especially demanding, particularly given the limited human and financial resources available.

The second major challenge is user behavior and vandalism. Many public spaces are intentionally damaged or neglected shortly after they are created, which places a heavy burden on municipal resources and staff. As a result, we have come to understand that the success of any green project depends not only on the municipality's efforts, but also on strong community involvement.

To address these challenges, we have actively pursued partnerships along two main tracks, aimed at overcoming resource limitations and reducing vandalism:

Track 1: Partnerships with local communities:

We consider local communities a key partner; however, civil society engagement is often seasonal, limited mainly to annual tree-planting and clean-up campaigns. While these initiatives are important, they are not enough to ensure ongoing, day-to-day maintenance. Our new participatory projects—such as the participatory greening pilot in Al-Kherba—aim to shift from one-off involvement to long-term community ownership. This approach helps ensure regular care of public spaces while reducing vandalism and neglect.

Track 2: Adoption and Partnership with Private Sector Institutions

To address the challenge of periodic maintenance, we are strengthening the concept of institutional "adoption," a practice with historical roots in the municipality that we are now organizing more systematically as part of our strategy. Some parks are already maintained by private institutions, which ensures high-quality upkeep while reducing the municipality's financial burden. This approach promotes shared responsibility for public spaces and helps prevent vandalism through continuous care and monitoring. Our goal is to expand this model to cover more key sites across the city.

What are the main funding sources for greening projects, and are there successful partnerships with international or donor organizations?

This question gets to the core of the challenges facing urban development in Tunis. At the Municipality of Tunis, we view urban greening as a long-term investment rather than a short-term expense, and we believe it requires a flexible, multi-faceted financing approach to be sustainable.

First, the municipal budget provides an essential foundation, supporting ongoing maintenance, enabling quick interventions, and covering the operational needs of neighborhood greening projects. However, moving from basic upkeep to transformative initiatives requires collaboration and strategic partnerships. Through these partnerships, we have received valuable financial and technical support, which has helped improve the quality of our projects and ensure their long-term sustainability.

I would like to extend my special thanks to our valued partner, the Arab Urban Development Institute (AUDI). The participatory greening project in the residential neighborhood of Al Kherba is a successful example of a comprehensive, forward-looking vision. We are proud that the project has now reached an advanced stage of completion. Partnerships like this provide the technical support needed to transform an idea into a well-designed, investment-ready plan. Besides this pioneering initiative, we also benefit from a wide network of international partners who support the diversity of our approaches, including:

- UN-Habitat: Implemented the "My Dignity" project in the Helal neighborhood, funded by the Government of Monaco.
- Cities Alliance: Partnered on the "Women of the City" project in the Medina, Sidi Mfarrej Square, with support from the United States Agency for International Development (USAID).
- Food and Agriculture Organization of the United Nations (FAO): Supported the first urban agriculture trials in Tunis.

Which project best reflects Tunis's green transition vision, and what message would you share with other Arab cities pursuing similar paths?

If I were to highlight a project that best embodies our vision for a green transformation, it would be the Green Urban Plan—not for its size, but for the way it redefines our understanding of the city. A city is more than buildings and roads; it is an interconnected ecological and social system that requires constant balance. This plan offers a comprehensive framework linking everything we do—from neighborhood revitalization to green pathways, tree planting, and urban agriculture—under a single vision. It is not just a technical project; it is a city-wide initiative that puts people and the climate at the center of every decision.

The most concrete example of our vision for the future is the redevelopment of Belvedere Park. This park is both the memory of the capital and its natural lung, and revitalizing it is more than an environmental effort—it is a step toward reconnecting residents with their natural surroundings. We see it as a symbol of the city's transformation toward a higher quality of life.

The message we want to share with Arab cities is straightforward: a green transformation cannot happen without the citizen. Any city can plant trees or build a green pathway, but true impact comes from engaging residents, listening to them, and working together. When people feel a project belongs to them, its success is almost guaranteed, and public spaces are naturally cared for and protected.

The second message is that a green transformation doesn't always need a huge budget to start; it begins with a small vision in a single neighborhood. A successful neighborhood can transform an entire city, and a thriving city can inspire others across the region.

Ultimately, what connects us as Arab cities is that we face the same challenges—extreme heat, urban density, and the need for fair access to public spaces. Even simple green solutions are powerful because they are close to people and can create real, tangible impact.

URBAN INSIGHTS

External Article

KING ABDULLAH GARDENS (KAGA) WHEN MEANING MATTERS MORE THAN FEATURES

Eng. Mohammed Abdullah Al-Wabely

Currently serves as the Assistant Deputy Mayor for Iconic Projects, Riyadh Region Municipality. He brings extensive executive leadership experience and a proven track record in managing large-scale, high-impact projects. Throughout his career, Eng. Al-Wabely has held senior leadership roles, including Vice President for Operations at the Ministry of Health. He has also held key administrative positions at the Expenditure and Project Efficiency Authority (EXPRO) and served as Project Manager at the King Abdullah Financial District (KAFD). His professional journey also includes significant experience with Wood Group Mustang in both the United States and Saudi Arabia.

Eng. Al-Wabely holds an MBA and a master's degree in engineering management, in addition to a Bachelor of Science in Civil Engineering. He has completed executive education programs at Oxford and Harvard Universities, is a licensed engineer in the State of Texas, and holds an expert-level certification in Electronic Project Management (EPM).

Some projects are created not only to meet urban needs, but to reflect a deeper and more meaningful vision. King Abdullah Gardens is one of these projects. It is a royal gift from King Salman bin Abdulaziz—may Allah protect him—to his brother, the late King Abdullah bin Abdulaziz—may Allah have mercy on him. The project goes beyond traditional planning by offering the city a welcoming and livable space, enriching people's lives before adding to the beauty of the place.

The project was not designed as a typical public park. Instead, it was created as an integrated urban and ecological system—a living botanical museum that tells the story of plant life through a thoughtful spatial

Source: Riyadh Region Municipality

"It is more than a place to visit; it is a space where emotions and memories are created, forming a perpetual intimacy between people and the environment"

and educational journey. Plants from different continents and climates are brought together within one unified design, offering visitors an experience that is both educational and engaging. Rather than simply observing nature, visitors interact with it, turning green space into an active platform for building environmental awareness.

The project covers an area of more than two million square meters and includes tens of thousands of trees and plants, creating a vast green space in the heart of Riyadh. It serves not only as a place of relief within the city, but also as a strategic effort to balance rapid urban growth with the protection of natural resources, guided by a long-term planning vision.

This vision is supported by smart infrastructure that focuses on efficient water and energy management and links the project to public transportation networks. This improves its connection to the existing urban fabric and surrounding city, reduces the need for private vehicles, and shows a clear commitment to building more sustainable cities and improving the quality of life.

The gardens offer an immersive urban experience that changes how the city sees itself and how people connect with nature. It is more than a place to visit; it is a space where emotions and memories are created, forming a perpetual intimacy between people and the environment.

The project adds value to many levels. It offers large green spaces that serve as a healthy refuge, along with areas for walking, relaxing, and enjoying leisure activities. This is all done through a careful balance between nature and urban development. The gardens are more than just beautiful, they help restore balance to everyday life and provide safe, welcoming spaces for everyone.

The project also has a unique architectural identity, creating a unified and recognizable visual presence. Its plant areas tell a story of how natural environments have evolved. The paths and experiences are designed to fully engage visitors, encouraging them to feel, explore, and learn rather than simply pass through.

This approach highlights the project's strong commitment to the principles of sustainability, making it a key part of its design. It offers a practical model for modern cities that want to grow without losing their identity. The gardens also function as an open-air botanical museum and a scientific center, featuring varied types of trees, shrubs, and ground cover, with a total number of one million. This adds environmental, educational, and cultural value, helping raise awareness among the community and becoming a productive, sustainable part of the city.

In short, King Abdullah Gardens is more than an urban project. It leaves a deep impact on people's lives even before it is fully complete. It is designed to last for generations, becoming a lasting urban landmark and a clear example of how thoughtful planning can create healthier, more balanced cities and a more sustainable way of life.

Source: Riyadh Region Municipality

External Article

SUSTAINABLY GOVERNING GROWTH: GREEN INFRASTRUCTURE AND THE UNEXPECTED POWER OF SMALL- AND MEDIUM-SIZED CITIES IN OUR URBAN FUTURE

Eleanor Mohammed

Eleanor is a globally recognized, award-winning executive leader with over 20 years of impact across the public, private, and not-for-profit sectors. A Partner at DIALOG, she delivers transformative solutions in urban governance and land use planning. She currently chairs the UN-Habitat Professionals Forum, co-chairs UN-Habitat Planners for Climate Action, and serves on the Arab Urban Development Institute Advisory Board. A former President of the Commonwealth Association of Planners and the Canadian Institute of Planners, she leads sustainable city-building, good governance, and climate resilience initiatives worldwide.

The Growth Reality of the Urban Century

The United Nations World Urbanization Prospects 2025 report found that the world is undergoing a historic shift towards urban living: in 1950 only 20 per cent of people lived in cities; by 2025 cities were home to 45 per cent of the world's 8.2 billion people.

The report also found that the total number of cities worldwide in 2025 was 12,000, which is more than double what it was in 1975. Megacities are expanding rapidly, with 37 cities expected to exceed 10 million residents by 2050; Jakarta, Indonesia, is already approaching 42 million people; Dhaka, Bangladesh, has nearly 37 million and is projected to become the world's largest city; and Tokyo remains among the largest at 33 million. Even with the growth of megacities, interestingly, most of the world's population lives in small- and medium-sized cities. It is these cities that are facing the fastest growth and development pressures. Ninety-six per cent of the

world's cities have fewer than 1 million inhabitants, and 81 per cent have populations below 250,000. By 2050, there could be more than 15,000 cities in the world, mostly with populations below 250,000.

City building, design, and associated best practices are often discussed through the lens of megacities, yet this view misses where most of the world's population is located. These small- and medium-sized cities function as critical connectors between rural regions and national economies. They host a large share of urban land expansion and economic transition. In aggregate, they shape global sustainability outcomes far more than the small number of metropolitan giants.

In addition to rapid growth, these smaller- and medium-sized cities are facing many escalating pressures: outdated or nonexistent urban planning governance systems, climate volatility, aging infrastructure, fiscal limits, housing shortages, and rising social inequity. With this, the critical question is not only how these cities will grow, but how they will sustainably govern growth.

Green infrastructure offers a compelling response to growth. But its effectiveness depends as much on modernized urban governance planning systems as on design innovation, particularly in the smaller- and medium-sized cities shaping our global urban future.

What is Green Infrastructure?

Green infrastructure refers to interconnected natural and semi-natural systems that provide essential urban services: parks and urban forests, wetlands and waterways, green roofs and walls, permeable surfaces, bioswales, ecological corridors, and restored floodplains. Unlike conventional "grey" infrastructure, it works with natural processes to manage stormwater, reduce heat, improve air and water quality, support biodiversity, and create healthier public spaces.

Crucially, green infrastructure is not just an aesthetically attractive amenity; it is important economic, social, and risk-management infrastructure.

Environmentally, it strengthens climate resilience by moderating extreme heat, reducing flood risk, and improving ecosystem function. Economically, it lowers life-cycle infrastructure costs, protects public assets, and enhances urban competitiveness. Socially, it supports public health, social cohesion, and more equitable access to climate protection and urban quality.

"Crucially, green infrastructure is not just an aesthetically attractive amenity; it is important economic, social, and risk-management infrastructure"

Implementing green infrastructure in small- and medium-sized cities presents a strategic opportunity. These cities are often more flexible, more governable, and less locked into carbon-intensive systems. They can integrate land use, mobility, housing, and environmental planning earlier in their growth trajectories. They can embed green infrastructure before patterns of sprawl, risk exposure, and service deficits become entrenched.

Yet at the same time, planning capacity and fiscal resources are frequently weakest in these cities, making the need for modernized urban governance planning systems essential.

The Urban Governance Gap

Conventional local government frameworks tend to separate land use from infrastructure investment, treat environmental systems as discretionary, prioritize procedural compliance over performance and innovation, and operate in departmental silos. Approval systems reward short-term efficiency rather than long-term resilience. Capital budgets distinguish between "hard" infrastructure and "landscape" investment, even when both deliver essential services.

Despite strong evidence, green infrastructure remains under-delivered. The primary constraint is not technical knowledge, it's the structure of the local government's urban governance planning system. Green infrastructure is value-engineered out, blocked for being too innovative, implemented inconsistently, or confined to isolated projects with limited cumulative impact, particularly in small- and medium-sized cities.

Modernized urban governance planning systems integrate land use, infrastructure, finance, and community outcomes into a single, performance-driven framework, rather than treating them as separate regulatory and service functions. They prioritize long-term city-building results, adaptive learning, innovation, creativity, and public–private collaboration over short-term approvals and procedural compliance.

When designed as part of a modernized urban governance planning system, rather than individual one-off projects, green infrastructure becomes a foundation for sustainable development.

Making Green Infrastructure Work

To unlock green infrastructure's potential, local governments must shift from urban governance planning system fragmentation to integration. Key actions include:

1. **Embedding green infrastructure in statutory policy:** Climate adaptation and ecosystem services must be explicit objectives in official plans, zoning, and subdivision regulations, supported by performance-based standards.
2. **Aligning capital investment with growth management:** Green and grey infrastructure should be planned and funded together using life-cycle costing.
3. **Adopting innovation and performance-based regulation**: Shift from prescriptive rules to outcome-focused metrics for stormwater, heat mitigation, and ecological function.
4. **Creating cross-departmental delivery structures:** Planning, engineering, parks, finance, and environment functions must share accountability.
5. **Leveraging the development process:** Density incentives, development charges, and expedited approvals can make green infrastructure economically predictable.
6. **Investing in data and learning systems:** Monitoring performance and adapting standards over time improves outcomes.
7. **Engaging communities as co-producers:** Co-design and stewardship with local communities strengthen social value and long-term care.
8. **Planning networks, not projects:** Design at the scale of watersheds and corridors to maximize cumulative impact.

Linking Scale and Sustainability

The global sustainability agenda will not be achieved by a handful of megacities. It will be shaped by thousands of small- and medium-sized cities making daily decisions about land, infrastructure, innovation, and investment.

Green infrastructure provides a practical, scalable, and financially rational pathway for these cities to grow in ways that are resilient, equitable, and environmentally responsible. But green infrastructure should not just be about making cities greener. It should be about making them work better. Small- and medium-sized cities are at the centre of our urban future. Modernizing urban governance planning systems to integrate nature as core infrastructure is one of the most powerful tools available to shape a sustainable urban century, at the city scale where it matters most.

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External Article

FROM GREEN TO BLUE INFRASTRUCTURES IN DRYLANDS: THE CASE OF DOHA, QATAR

Dr. Anna Grichting Solder

Anna Grichting Solder is a Swiss architect, regenerative urbanist, and musician whose interdisciplinary work spans architecture, urban ecological design, cultural performance, and climate advocacy, especially through the lens of Blue Urbanism and the Blue Gulf initiatives. Her career exemplifies the fusion of scientific research, indigenous knowledge, music, and participative design to create resilient, nature-positive, and emotionally engaged urban futures focused on water and coastal relationships. Anna Grichting Solder's career, interdisciplinary projects, publications, and performances on the BLUE reflect her commitment to designing inclusive, resilient futures at the interface of urbanism, ecology, and cultural expression.

Gulf dryland cities like Doha are presented as laboratories for rethinking water, landscape, and urbanism through nature-based "blue" design strategies. In a desert context marked by rapid growth, desalination dependence, marine pollution, biodiversity loss, and intense flash floods, sustainability is reframed from a visually "green" aesthetic toward a systemic blue focus on water cycles, coastal ecologies, and regenerative infrastructures that turn waste streams into resources.

Context: Drylands, Risk and Blue design

The context of hot, arid Gulf cities where fast urbanization, fossil-fuel economies, and heavy groundwater abstraction have produced severe environmental stress alongside dramatic events such as the 2018 Doha flash floods, when about a year's average rainfall fell in one day. Potable water now comes almost entirely from desalination, while treated wastewater and stormwater are under-utilized even as the Gulf's marine ecosystem shows signs of having exceeded its buffering capacity. In response, the proposal is to treat the city as a regenerative system of organic streams—greywater, sewage, runoff and organic waste—feeding new urban layers of wetlands, forests, farms and public spaces that provide cooling, carbon capture, food production and biodiversity.

Conceptual shift: from Green to Blue Urbanism

Blue design is framed through three interlinked strands: blue urbanism (rethinking the relationship between cities and oceans), blue networks (water-based urban design), and a "green to blue" shift towards actively regenerative projects rather than merely less harmful ones. In drylands, water-hungry lawns and ornamental greenery are criticized as ecologically untenable, and the focus moves to integrated systems where buildings, landscapes and infrastructures exchange energy, water, food and waste in symbiotic loops, aiming for ecological "surpluses" beyond carbon neutrality. This implies abandoning top-down, tabula rasa planning and starting instead from topography, hydrology and habitats, making landscape the infrastructural foundation of the city, not an optional decorative layer.

Coastal interface: Mangroves, Turtles and Transboundary ecologies

A major emphasis falls on the coastal interface, understood as the hinge between urban development and marine resilience. Design and research projects explore how soft ecological engineering—mangrove belts, oyster reefs, tidal pools, saline agriculture and sea-farming—can mitigate sea-level rise and storm surges, clean polluted waters, create productive landscapes and provide biodiverse public spaces along places such as Doha's Corniche. "Blue Belt" concepts propose mangrove-based buffer systems around the Qatari coastline to protect endangered species like dugongs and hawksbill turtles, while structuring future development in northern and southern coastal zones.

Nature-based tourism and conservation projects at Al Thakira and Al Fuwairit illustrate how flagship species and sensitive mangrove and dune ecologies can anchor master plans combining habitat restoration, lighting controls, access management, floating mangrove islands, and low-impact recreation such as kayaking and boardwalks. At the regional scale, proposals for a Gulf ecological gateway around disputed border areas such as the Hawar Islands and Khor al Adaid reframe planned bridge and rail links as potential transboundary biosphere corridors, suggesting that water, biodiversity and shared coastal ecologies could support "blue peace" and renewed cooperation beyond current political crises.

"By treating water, seawater, stormwater, and treated effluent alike, as an organizing medium and shared security concern, blue design in Qatar aims to convert dryland cities into regenerative, biodiverse and socially inclusive environments"

Urban interior: Saline agriculture, Wetlands and Urban forestry

Within the urban fabric, a series of blue-green interventions are outlined that connect food, water, energy and waste flows. Along Doha's main waterfront, a "Cyan Corniche" vision overlays saline agriculture and halophyte planting onto existing and new open spaces, combining canals, saltwater lakes and salt-tolerant crops to transform salty, otherwise marginal soils into sites of food production, flood protection, habitat creation and public enjoyment. Detailed mapping of resource flows supports strategies where seawater and saline soils are not problems to be engineered away but starting points for productive, adaptive landscapes.

Constructed and emergent wetlands appear as "turquoise infrastructure" for disaster buffering, water treatment, leisure and biodiversity. The Abu Nakhla scheme, for instance, reimagines a large treated effluent pond as a managed wetland complex with habitat cores, botanical gardens, community agriculture plots and a research facility, structured by ecological zoning and bio-drainage, even as the specific reservoir is now being decommissioned. In high-density districts such as West Bay, "Blue Ways" envision transit-oriented public spaces organized around urban rivers carrying treated wastewater and stormwater, cleaned through bio-remediation landscapes before reaching the sea, and turning car-dominated business areas into walkable, water-structured precincts.

Urban forestry and green-belt systems complement these water infrastructures in response to dust storms, air pollution and heat-island effects. Using surplus treated sewage effluent, proposed belts and corridors around and through Doha would filter dust, capture carbon, provide shade, enhance biodiversity, and create accessible leisure landscapes, supported by policy tools such as a city-wide tree charter that links indigenous species, heritage trees and community participation.

Pedagogy, Governance and Landscape as Infrastructure

A distinctive feature of the approach is the role of academic design studios as experimental platforms connecting students with ministries, public works authorities, research centres and NGOs. In an otherwise hierarchical, technocratic planning culture, these studios act as bottom-up laboratories where overlooked issues—wetlands, turtle nesting beaches, mangrove forests, treated effluent ponds—are reframed as strategic design opportunities and fed back into institutional agendas through presentations, exhibitions and pilot proposals. The projects align with national development visions and frameworks while also challenging the relegation of landscape to cosmetic beautification, a tendency reinforced by austerity and post-blockade budget cuts.

The overall argument is that crises—from flash floods to political blockades—can become catalysts for more resource-efficient, self-reliant and resilient approaches if landscape is elevated to the status of core infrastructure and urbanism is reimagined as working with nature. By treating water—seawater, stormwater, and treated effluent alike—as an organizing medium and shared security concern, blue design in Qatar aims to convert dryland cities into regenerative, biodiverse and socially inclusive environments, and to position water as a vehicle for regional cooperation and long-term "blue peace."

Note:
This work has been continued and scaled up to the regional dimension in the "Blue Gulf" interdisciplinary workshop convened by Anna Grichting at the Gulf Research Meeting in Cambridge exploring innovative "Blue Design" strategies to address climate resilience and marine ecosystem preservation in coastal cities of the Gulf region.

Reference:
Blue Design for Urban Resilience in Drylands: The Case of Qatar. January 2020. DOI:10.1007/978-3-030-26717-9_9.
In book: Nature Driven Urbanism (pp.175-208).

TOOLKITS ON GREEN INFRASTRUCTURE

As cities face mounting challenges from rapid urban growth, climate variability, and infrastructure demands, municipal authorities must address complex issues such as stormwater management, green space integration, and climate resilience. Effective planning requires practical tools that enable evidence-based decision making while promoting sustainable, inclusive, and adaptive urban environments.

This issue of Mudununa introduces four international toolkits offering structured guidance, models, and frameworks for implementing green infrastructure, nature-based solutions, climate-sensitive planning, and comprehensive green city strategies. These resources are intended to help municipalities translate strategic sustainability and resilience objectives into actionable, context-specific urban interventions.

1

Toolkit 1:
Green Infrastructure Modeling Toolkit

2

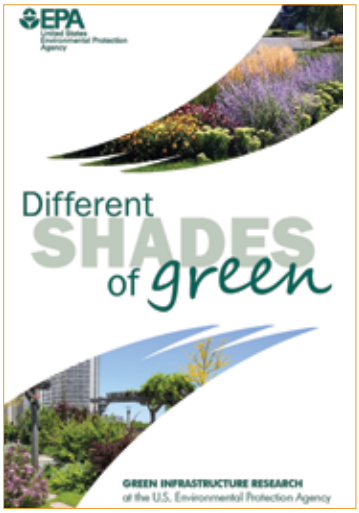
Toolkit 2:
IUCN Global Standard for Nature-based Solutions

3

Toolkit 3:
Climate-Proof Integrated Urban Planning

4

Toolkit 4:
Green City Development Toolkit



United States Environmental Protection Agency, ©2016

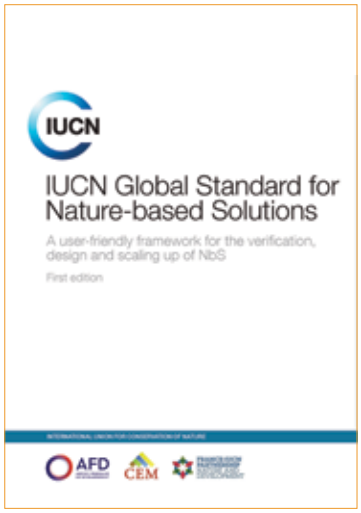
https://www.epa.gov/water-research/green-infrastructure-modeling-toolkit

Toolkit 1:
Green Infrastructure Modeling Toolkit

The Green Infrastructure Modeling Toolkit is a consolidated package of software tools, decision support models, and reference resources designed to help planners, engineers, and municipal authorities evaluate and implement green infrastructure and hybrid stormwater management strategies.

The toolkit spans a spectrum of components such as the Storm Water Management Model (SWMM) for detailed hydrology and drainage system simulation, the National Stormwater Calculator (SWC) for site level runoff estimates; the Watershed Management Optimization Support Tool (WMOST) for watershed scale planning and cost-benefit trade offs, the Visualizing Ecosystems for Land Management Assessment (VELMA) model to quantify pollution reductions and broader ecosystem impacts; and additional tools such as lifecycle cost analysis and decision support applications for selecting optimal combinations of green and grey infrastructure.

Overall, the Toolkit facilitates data driven decision making: it supports comparison of alternative stormwater management scenarios; quantifies environmental outcomes; estimates costs over infrastructure lifecycles; and helps municipalities design strategies that balance hydraulic performance, environmental protection, and economic feasibility.



International Union for Conservation of Nature, ©2020

https://portals.iucn.org/library/sites/library/files/documents/2020-020-En.pdf

Toolkit 2:
IUCN Global Standard for Nature-based Solutions

This document establishes a unified, internationally recognized framework for designing, evaluating, and scaling nature based solutions. It delineates eight criteria and associated indicators that projects should meet to qualify as effective, sustainable NbS, ensuring that initiatives deliver real environmental, social, and governance benefits rather than incidental or short term gains.

The Standard seeks to provide a common language and rigorous benchmark for a wide range of NbS applications, from urban green infrastructure and ecosystem restoration to climate adaptation and disaster risk reduction, enabling consistent assessment across geographies and sectors. It addresses key dimensions such as biodiversity protection, ecosystem integrity, social inclusion, long term viability, and governance mechanisms.

For practitioners, planners, and decision makers, the Standard offers a tool to design NbS consciously, by embedding ecological and social considerations from the start, assess proposed or existing NbS projects against clear criteria, and scale and replicate successful initiatives with confidence that they meet global best practices.

By adopting this Standard, cities and institutions can avoid 'greenwashing' or poorly planned projects, ensuring that nature based interventions meaningfully contribute to sustainability, resilience, and equitable outcomes.

Deutsche Gesellschaft für Internationale Zusammenarbeit(GIZ), ©2019

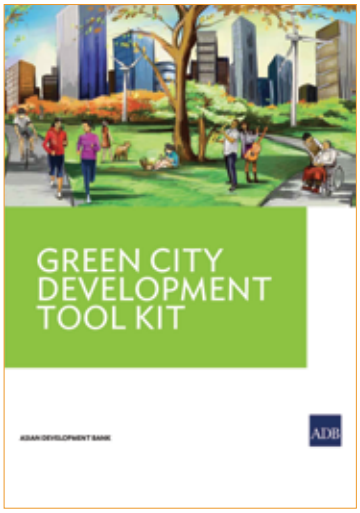
https://www.giz.de/en/downloads/giz2019-0113en-cfcc-chile-integrated-urban-planning-toolkit.pdf

Toolkit 3:
Climate-Proof Integrated Urban Planning

The GIZ 'Climate Proof Integrated Urban Planning Toolbox' provides a structured approach for incorporating climate resilience and integrated development into urban planning processes. It is organized into three main phases: preparation, concept design, and implementation. Each phase includes clear steps and milestones that guide cities from stakeholder engagement and work plan development, through the creation of a 'Climate Proof Integrated Urban Development Concept' using participatory processes, to the execution of concrete actions.

The toolbox categorizes its resources into three types: milestone tools, which define key steps in the planning process; support tools, which facilitate coordination and process management; and principle or content tools, which focus on embedding climate adaptation and mitigation into urban planning. A roadmap table outlines each step, the expected outputs, and the sequence of tools, helping practitioners maintain a multisectoral and climate aware perspective throughout the planning process.

Its primary aim is to assist cities in developing holistic urban strategies that integrate climate objectives with conventional planning goals. By fostering collaborative governance, multi stakeholder engagement, and inclusive planning, the toolbox supports coordinated land use, infrastructure, and climate-resilience initiatives rather than isolated sectoral projects.



Asian Development Bank, ©2015

https://www.adb.org/sites/default/files/institutional-document/173693/green-city-dev-toolkit.pdf

Toolkit 4:
Green City Development Toolkit

This Toolkit offers a comprehensive, practical reference for urban planners, decision makers, and city leaders seeking to steer cities toward green, sustainable development. At its core the Green City Development toolkit defines what constitutes a "green city", one that optimizes water cycle management, energy efficiency, low carbon transport, waste reduction, green and resilient infrastructure, and high quality of urban environment, while recognizing that each city's path will vary based on its context.

The Toolkit follows a three-step assessment framework: (1) context and city profiling, (2) prioritization and identification of green development options, and (3) detailed design and evaluation. This phased approach aligns with the standard urban development project cycle and helps translate strategic ambition into actionable interventions.

It covers a wide spectrum of urban sectors, water and sanitation, stormwater management, solid waste, transport, energy, built environment, climate adaptation, disaster risk reduction, and green infrastructure, and provides an inventory of existing resources, tools and good practices to support each domain.

By combining cross sectoral integration, system level thinking and flexible adaptation to local conditions, the Toolkit supports cities in categorizing their 'green city status,' diagnosing critical needs, selecting interventions best suited to local conditions, and formulating monitoring and evaluation frameworks to track progress over time.

CITIES IN ACTION

Project 1

Al Ansab Wetland, Muscat
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Nature-Based Solutions for Flood and Water Management
Jeddah, Muscat, and Dubai

As urban populations grow and extreme weather events increase, cities in the Arab region are turning to nature-based solutions to manage flood risks and stormwater while enhancing ecological and social resilience. Nature-based solutions integrate natural processes into urban design using vegetation, wetlands, and landscape engineering to reduce runoff, buffer floods, and restore biodiversity. Cities such as Jeddah, Muscat, and Dubai are pioneering these approaches, combining ecological restoration with urban development priorities and community engagement.

Jeddah faces a complex challenge of seasonal flash floods, driven by intense rainfall and rapid urban expansion over its wadis. The Wadi Al Asla project addresses these risks by combining ecological restoration with hydraulic management. The initiative includes reforesting wadi slopes with native trees and shrubs to stabilize soil, reduce erosion, and enhance infiltration. These plantings slow water flow during rain events and reduce the impact of downstream flooding.

The project also features engineered drainage channels designed to manage frequent and moderate flood events, in line with hydrological studies specific to Jeddah's urban catchment areas. Community engagement programs educate residents about the importance of native vegetation, sustainable water

management practices, and the role of green infrastructure in reducing flood risks. Public spaces are integrated along the wadi, providing shaded walkways, small parks, and recreational areas. Wadi Al Asla demonstrates how combining ecological restoration with urban flood management can protect densely built environments while creating multifunctional green spaces.

In the case of Muscat, the Al Ansab Wetland restores a degraded coastal wetland to serve multiple urban functions. Treated effluent from the city's water infrastructure is channeled into ponds and lagoons, creating a stable water source in an arid climate. The wetland improves water quality, stores stormwater, and provides habitat for migratory birds and native fauna. More than 300 species, including the Egyptian vulture and the Steppe eagle, rely on this wetland for part of their life cycles.

Boardwalks, observation platforms, and shaded seating areas allow residents to interact with nature, fostering environmental awareness and offering recreational opportunities. By integrating nature-based solutions into the urban landscape, Al Ansab enhances Muscat's resilience to flooding while

Ras Al Khor Wildlife Sanctuary

strengthening biodiversity and community well-being. The project illustrates how wetland restoration can deliver ecological, hydrological, and social benefits simultaneously.

In Dubai, the Ras Al Khor Wetland Reserve, located within one of the most densely urbanized cities in the world, uses coastal nature-based solutions to regulate water and protect against flooding. The reserve is home to extensive mangrove forests and provides critical habitat for thousands of migratory birds. Restoration efforts focus on enhancing mangrove ecosystems, stabilizing shorelines, and improving sediment retention to reduce the impact of tidal and storm surges on nearby urban areas.

The reserve also functions as a public nature destination, featuring boardwalks, birdwatching hides, and interpretive facilities. Residents and visitors can engage with the wetland environment, combining ecological conservation with recreational and educational experiences. Ras Al Khor demonstrates how urban coastal wetlands can serve as natural flood buffers while providing social and environmental value.

These projects highlight a transition in regional urban planning from conventional grey infrastructure to integrated ecological approaches. Nature-based solutions manage stormwater, reduce flood risk, improve air and water quality, enhance biodiversity, and create socially engaging green spaces. Local ecological knowledge and native species selection are central to these initiatives, ensuring sustainability and minimizing maintenance. Public engagement and education are also key components, helping residents understand and support these interventions. Wadi Al Asla, Al Ansab Wetland, and Ras Al Khor collectively demonstrate the transformative potential of nature-based solutions in Arab cities. They provide replicable models for integrating ecological approaches into urban development, balancing flood management, biodiversity conservation, and community enrichment. As climate risks intensify, these projects offer practical pathways toward more resilient, sustainable, and livable cities.

Wadi Al Asla Development, Jeddah

Project 2

Doha, Qatar

Green Streets and Sustainable Mobility Corridors
Cases from Tunis and Doha

As urban mobility evolves, it is no longer only about moving from one point to another, but rather the journey itself has become a core dimension of urban livability, climate resilience, and social inclusion. Across the Arab region, some cities are rethinking their streets by transforming them from car-dominated conduits into green, human-scaled corridors that balance mobility with shade, walkability, and public space. The projects in Tunis and Doha show how green streets and mobility corridors can respond to environmental, social, and cultural challenges while reshaping how residents experience their city.

In the historic medina of Tunis, the Femmedina Inclusive City Programme launched an inclusive, gender-sensitive intervention to rehabilitate narrow alleys, underused courtyards, and degraded public spaces into safe, accessible, and green corridors. The Bab Souika Medina Green Street, also known as the El Kherba Axis, converts previously congested, car-oriented areas into pedestrian-friendly spaces that prioritize the needs of women, children, and other vulnerable groups. Shaded walkways, landscaped plazas, seating areas, and small public gardens create safe and multifunctional urban space.

The project follows a participatory process. Over eighteen months, municipalities, urban planners, local women's organizations, and residents collaborated to map community needs, identify unsafe zones, and co-design interventions. The transformed areas include a

Women's Safe Haven, small public gardens, co-working spaces, training facilities for women artisans, and kiosks for informal commerce. These green corridors are more than pathways; they act as social connectors linking residences, markets, craft workshops, educational centers, and communal spaces. By replacing vehicular dominance with walkable, shaded streets, the project enhances accessibility, reduces exposure to heat and pollution, and fosters a sense of ownership among historically marginalized users. Two years after implementation, the rehabilitated spaces have helped revive public life, increased women's social and economic participation, and improved perceptions of safety and belonging.

In Doha, the Public Works Authority, Ashghal, has developed a large-scale programme to integrate green spaces with pedestrian and cycling infrastructure across new and existing neighborhoods. Over the past four years, more than 363,000 square meters of green spaces and nearly 995 kilometers of pedestrian and cycling paths have been developed within residential areas.

The redevelopment along the central waterfront and corniche zones, including Al Corniche, Al Dafna, and Al Bidda, has planted more than 920 palm trees, created over 17,000 square meters of new green space, and installed wide pedestrian and cycling paths designed to international accessibility standards. These corridors are multifunctional. They integrate public plazas, pedestrian underpasses, benches, landscaping, shaded walkways, and aesthetic lighting. The design incorporates elements of Qatari identity, including lighting poles shaped like palm fronds and wooden platforms that evoke the region's maritime heritage.

The project is supported by a broader institutional plan that organizes interventions according to population density, projected urban growth, and resident needs. By embedding pedestrian and cycling paths alongside green infrastructure, Doha promotes low-emission mobility, reduces reliance on private cars, and supports healthier, climate-adapted urban living. The corridors also provide safe, accessible spaces for families, older adults, and people with reduced mobility. They connect residential neighborhoods, workplaces, public parks, and cultural sites such as the Museum of Islamic Art, creating an integrated network for recreation, commuting, and social interaction.

The experiences of Tunis and Doha show the evolving role of streets in Arab cities. Streets are no longer solely conduits for vehicular movement; they can be green,

Tunis, Tunisia

walkable, inclusive public spaces.Several factors contribute to the success of these corridors. Integration between mobility planning, green-space design, and social inclusion ensures that corridors serve multiple urban functions, including climate adaptation, recreation, mobility, and community building. In Tunis, participatory planning with women's groups addressed gender-based spatial exclusions. In Doha, institutional frameworks and strategic planning enabled systematic expansion and long-term maintenance.

Green infrastructure combined with pedestrian and cycling paths reduces urban heat, improves air quality, and makes sustainable mobility feasible under hot climatic conditions. Contextual design is also essential. In historic medinas such as Tunis, interventions must respect heritage and local spatial patterns. In fast-growing modern cities such as Doha, scalable infrastructure can be integrated into new districts and waterfront developments.

These initiatives highlight the importance of inclusivity, designing not only for mobility efficiency but for social equity, safety, and public space accessibility. The result is corridors that connect people, culture, nature, and mobility, supporting sustainable urban life in dense, climate-vulnerable cities. With rising climate stress, growing populations, and increasing demand for sustainable mobility, green streets and sustainable transport corridors provide a replicable model for Arab cities seeking to balance growth, resilience, and urban quality of life.

Project 3

Al Majarah Park, Abu Dhabi

Restoring Urban Ecologies
Riyadh, Abu Dhabi, and Kuwait

Urban parks, shade networks, and green corridors are redefining city life across the Arab region, combining ecological restoration with social and cultural vitality. As cities grapple with rising temperatures, rapid urbanization, and limited public spaces, these initiatives provide a critical strategy for improving livability while mitigating climate risks. By integrating nature directly into urban fabrics, cities are reducing the urban heat island effect, improving air quality, and fostering healthier, more inclusive public spaces. Riyadh, Abu Dhabi, and Kuwait City offer leading examples of how large-scale greening programs can transform both microclimates and everyday urban experiences.

The Green Riyadh Program, one of the most ambitious urban greening initiatives in the Middle East, seeks to plant millions of trees across streets, parks, and public spaces throughout the capital. The program strategically establishes shaded corridors along major transportation routes, pedestrian walkways, and public gathering spaces, significantly lowering ambient temperatures and providing respite from extreme heat. By connecting parks with residential neighborhoods and commercial zones, the initiative fosters greater accessibility and encourages walking, cycling, and outdoor social activity. Beyond environmental benefits, Green Riyadh prioritizes community engagement, having recently achieved a Guinness World Record by engaging the largest number of volunteers on its platform within one week.

Green Riyadh Program, Riyadh

Local schools, volunteers, and civic groups are involved in planting campaigns, educational workshops, and awareness programs, cultivating a sense of ownership and stewardship among residents. The program also incorporates native and climate-resilient plant species, ensuring long-term sustainability in the arid Riyadh climate. Through careful monitoring and adaptive planning, Green Riyadh serves as a model for how large-scale tree planting and shade infrastructure can positively affect both microclimate and community cohesion.

Abu Dhabi's Capital Parks Urban Greening Strategy illustrates a sophisticated approach to integrating greenery into dense urban environments. The strategy focuses on creating expansive public parks, tree-lined boulevards, and interconnected green pathways that enhance pedestrian mobility while supporting biodiversity. By designing spaces with shade-providing trees, vegetated streets, and landscaped open areas, the project addresses the dual goals of thermal comfort and recreational opportunity. The initiative also integrates sustainable stormwater management systems, using vegetation to improve water retention and reduce runoff, while contributing to cooler urban temperatures. The strategy emphasizes inclusiveness by designing spaces accessible to all residents, with shaded seating areas, walking paths, and community gathering spots. Additionally, the program aligns with broader urban planning objectives, promoting active lifestyles and reducing reliance on vehicular transport through green corridors that encourage walking and cycling. By combining climate adaptation, recreation, and sustainability, Abu Dhabi demonstrates how urban greening can serve as a multifunctional urban solution.

Al Shaheed Park, Kuwait's largest urban park, exemplifies how green infrastructure can harmonize environmental, cultural, and recreational objectives. The park's design incorporates extensive tree planting, water-sensitive landscapes, and shaded pathways that significantly reduce ambient temperatures and provide comfort to visitors.

Beyond cooling benefits, Al Shaheed Park actively supports biodiversity through native plantings and habitats for local fauna. The park also integrates cultural elements, with museums, walking trails, and gathering spaces that reflect Kuwaiti heritage while promoting social cohesion. Importantly, Al Shaheed Park functions as an urban green belt, connecting neighborhoods, public facilities, and adjacent recreational areas, creating a continuous network of natural spaces that improve microclimatic conditions across a larger urban area. Educational programming, volunteer initiatives, and community events further strengthen the park's role as a hub for public engagement, demonstrating how green infrastructure can combine ecological, social, and cultural functions in a densely urbanized setting.

These initiatives collectively illustrate a regional trend towards prioritizing green infrastructure as a central element of urban planning. Urban parks and shade networks are no longer optional amenities; they are strategic interventions that enhance climate resilience, public health, and social cohesion. By mitigating the urban heat island effect, improving air quality, and promoting outdoor physical activity, these projects address multiple challenges of contemporary urban life. They also foster community engagement and create inclusive public spaces that bring diverse populations together.

Moreover, the initiatives in Riyadh, Abu Dhabi, and Kuwait City offer transferable lessons for other Arab cities facing similar climatic and urban challenges. Key success factors include the integration of native and drought-resistant species, adaptive planning to respond to extreme weather, community participation, and connectivity between green spaces and transportation networks. These projects demonstrate that effective urban greening requires not just planting trees, but careful planning, monitoring, and alignment with broader city development strategies.

Al Shaheed Park, Kuwait

Project 4

Al Khuwair Beach, Muscat
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Waterfront Green Infrastructure and Coastal Restoration
Cases from Muscat and Alexandria

Coastlines sit at the intersection of urban growth, climate vulnerability, and ecological opportunity. Waterfront green infrastructure and coastal ecosystem restoration provide a strategy to protect cities from sea-level rise, erosion, and habitat loss, while creating public spaces, enhancing biodiversity, and supporting sustainable development. Projects in Muscat, Oman, and Alexandria, Egypt, demonstrate how coastal restoration can deliver environmental, social, and resilience benefits in urban contexts.

The Al Khuwair Waterfront redevelopment transforms a former administrative and industrial district in central Muscat into a climate-resilient, mixed-use urban waterfront. Covering approximately 3.3 million square meters, the project integrates residential, commercial, cultural, and recreational spaces with a continuous public waterfront promenade. The planning and design, led by international architects, embed climate adaptation measures including stormwater management, coastal protection, and sustainable landscaping that supports native vegetation and urban biodiversity.

A key objective of the project is to reconnect residents with the sea. Public promenades, green corridors, and open plazas offer spaces for walking, cycling, and community activities. Boardwalks and elevated paths protect the shoreline and sensitive ecological zones while allowing interaction with coastal habitats. The project also includes stormwater management systems designed to capture and filter

runoff, reducing the impact of seasonal flooding and improving water quality in the adjacent harbor and mangrove-adjacent areas.

Social integration and urban livability are central to the Al Khuwair design. Mixed-use development encourages active public life along the waterfront. Cultural facilities, cafes, and community spaces are situated alongside green belts and shaded walking paths, creating spaces that are accessible to all residents. The planning process involved collaboration between municipal authorities, urban planners, environmental specialists, and local stakeholders to ensure that development balances urban needs with ecological preservation.

Ecologically, the Al Khuwair Waterfront enhances coastal resilience by stabilizing shorelines, increasing native vegetation cover, and creating habitats for urban-adapted marine species. The combination of natural buffers and engineered coastal protections provides a model for climate-adaptive urban design in Gulf cities. By integrating public access, urban recreation, and ecological function, the project demonstrates that urban waterfronts can serve as multifunctional spaces that deliver environmental, social, and climate benefits simultaneously.

In Alexandria, the Lake Mariout coastal-lagoon system has become the focus of ecological restoration and climate adaptation planning. Decades of urban encroachment and pollution had degraded wetlands that historically provided flood buffering, water filtration, and critical habitat for fish and bird species. Restoration efforts aim to revive these ecological functions while enhancing resilience for surrounding urban neighborhoods.

The project includes reintroducing native aquatic vegetation, rehabilitating wetland ecosystems, and reconnecting the lagoon with adjacent urban developments. These interventions improve stormwater management, reduce coastal erosion, and re-establish natural water filtration. The restored

Lake Mariout, Alexandria

wetlands also offer opportunities for recreation, education, and public engagement, fostering stewardship of these urban ecosystems.

Ecologically, the rehabilitation provides flood buffering, improved water quality, and enhanced biodiversity. Socially, it reconnects residents with coastal environments and provides spaces for recreation and community activities. From an urban planning perspective, the project shifts from traditional hardened coastal defenses such as seawalls toward nature-based, ecosystem-driven solutions.

Both Al Khuwair and Alexandria illustrate the multifunctional value of waterfront green infrastructure. In Muscat, urban redevelopment integrates climate adaptation, stormwater management, and biodiversity enhancement within a dense urban fabric. In Alexandria, wetland rehabilitation addresses flooding, improves water quality, and reconnects urban populations with coastal ecosystems.

Critical success factors include strong ecological foundations such as the selection of native species, careful site assessment, and adaptive management to ensure resilience in challenging coastal environments. Integrating public access and community engagement alongside ecological restoration enhances awareness, stewardship, and social value. Alignment with municipal and national strategies ensures political support, funding, and institutional coordination, enabling long-term impact.

These projects demonstrate that coastal green infrastructure is not peripheral but central to climate adaptation, urban resilience, and livability. By combining scientific restoration with inclusive planning and public access, cities in the Gulf and Mediterranean can transform degraded shorelines into resilient ecosystems, vibrant public spaces, and natural buffers against climate threats. Waterfront restoration in Muscat and Alexandria provides a replicable model for other urban coastal cities seeking to integrate ecological health, social inclusion, and climate-resilient development.

Project 5

Green Roofs at American University of Beirut

Climate-Adaptive Infrastructure
Green Buildings in Beirut and Cairo

Urban centers across the Arab region face increasing pressures from heat, dense construction, and limited green space. Building-scale green infrastructure, green roofs, vertical gardens, and climate-adaptive architecture, is emerging as a solution to improve microclimates, reduce energy consumption, and enhance urban resilience. Projects in Beirut, Lebanon, and Cairo, Egypt illustrate how integrating vegetation into buildings can transform rooftops and facades into multifunctional urban assets that deliver ecological, social, and thermal benefits.

In the city of Beirut, an ecological campus pilot has been launched at the American University of Beirut that introduces green roofs across multiple academic and administrative buildings. The project combines drought-tolerant native and Mediterranean-adapted plants with lightweight substrates and structural design suited for rooftop installation. Rainwater harvesting and targeted irrigation enhance sustainability, allowing the greenery to thrive during Beirut's hot, dry summers.

The green roofs provide thermal insulation, reducing energy demands for cooling while moderating indoor temperatures. Vertical gardens along facades create shaded outdoor areas for students and staff, improving usability of semi-open spaces. Native flowering plants attract pollinators, while small shrubs and groundcovers contribute to biodiversity. The campus functions as a living laboratory: students and faculty

monitor plant health, soil moisture, and microclimatic effects, as well as track biodiversity and ecological interactions.

Beyond environmental outcomes, the project supports education and engagement. Workshops and research programs teach students about sustainable urban design, water management, and the integration of vegetation into dense urban settings. The pilot demonstrates that green roofs and walls can simultaneously serve ecological, social, and educational purposes while providing measurable climate adaptation benefits in dense Mediterranean urban contexts.

In Cairo, the Egyptian Environmental Affairs Agency (EEAA) has implemented a green roof program targeting public buildings, aiming to mitigate urban heat, improve air quality, and create green spaces in densely built districts. Rooftops of government offices and utility facilities have been converted into vegetated spaces, while community-level projects encourage residents in informal neighborhoods to transform flat roofs into gardens.

Technical adaptations include lightweight growing media, drought-tolerant species, and greywater irrigation systems to conserve potable water. Rooftop gardens now host herbs, vegetables, and flowering plants, providing food, shade, and cooling effects. These gardens also serve as social spaces for residents, promoting interaction, urban agriculture, and community cohesion. Municipal workshops train local residents in maintenance and irrigation techniques, ensuring long-term viability of rooftop installations.

The initiative demonstrates how small-scale interventions can collectively improve the urban environment. Distributed green roofs reduce local temperatures, absorb stormwater, and contribute to urban biodiversity. They also offer residents access to private or semi-private green space in a city where ground-level public green areas are scarce. The Cairo projects exemplify how institutional support and community participation can combine to scale rooftop greening effectively.

Beyond Beirut and Cairo, various developers and organizations across the Arab region are introducing green roofs and walls in apartment complexes and urban projects. Modular planter systems, vertical gardens, and drought-tolerant vegetation make adoption feasible in dense neighborhoods and low-income housing. Research-led pilots and proposed building codes in new satellite cities indicate a growing institutional interest in standardizing climate-adaptive, vegetation-integrated buildings, providing technical guidelines and maintenance frameworks.

The experiences of Beirut and Cairo highlight the ecological, social, and thermal benefits of building-scale green infrastructure. Green roofs and walls moderate temperatures, reduce energy demand, manage stormwater, enhance biodiversity, and create functional social spaces. Even in water-stressed, dense urban areas, such projects demonstrate that rooftop and facade greening can become a core component of urban sustainability. By learning from these institutional and community-led examples, other cities in the Arab region can integrate green roofs and walls into urban planning, turning underutilized building surfaces into resilient, multifunctional green infrastructure.

Green Roof Classroom, Cairo

Project 6

Development of the Forest of Bouskoura Merchich

Urban Forestry and Native Plantation
Lessons from Amman and Casablanca

Urban forestry, when grounded in native species and tailored to local ecological conditions, emerges as a strategic lever for climate adaptive urban development. In water scarce, rapidly growing urban environments across the Arab region, restoring green networks helps mitigate heat, improve air quality, support biodiversity, and create inclusive public spaces. In the cases of Ghor Al Safi near Amman and Bouskoura Merchich Forest near Casablanca, we observe how urban forestry becomes embedded in ecological restoration, water sensitive management, social design and governance frameworks, turning green ambition into long term urban resilience.

In the Jordanian context, Ghor Al Safi had long suffered from a shortage of safe, accessible public spaces, especially affecting women, children, and marginalized groups. Following collaborative consultations among local residents, civic organizations and international agencies, the area underwent a transformative rehabilitation: a degraded open lot and an outdated community building were converted into a modern green public park and community centre.

The newly inaugurated space, known as Zaha Cultural Centre Ghor Al Safi Park, encompasses shaded walkways, trees and native plantings, inclusive playgrounds, including for children with disabilities, and multi use areas for social and cultural activities. What distinguishes this project is its integration of urban forestry with social empowerment: a designated market area enables vulnerable women to showcase

and sell handcrafted products; the community centre hosts vocational training, digital skills workshops, and entrepreneurial courses. This combination of ecological design and socio economic initiatives offers residents not only shaded greenery but also livelihood opportunities and a renewed sense of communal ownership. Reports indicate that more than 37,000 inhabitants, 46 percent of whom are women, directly benefit from the space, with additional spill over benefits for neighboring communities that previously lacked safe outdoor areas. The project reflects a shift from seeing green corridors as ornamental, to treating them as essential public infrastructure that supports wellbeing, equity, and social cohesion.

In Morocco, Casablanca confronted severe drought, recurrent water scarcity, and deterioration of its urban green spaces. The Bouskoura Merchich Forest, originally one of the largest peri urban forest belts in the metropolitan area, had suffered from neglect, tree mortality, and ecological degradation. In 2024, the National Agency for Water and Forests launched a rehabilitation program that targeted thousands of hectares for restoration. Under this plan, 150 hectares of dead or dying trees were cleared to prevent further ecological damage, while approximately 700 hectares were earmarked for reforestation using drought resistant, climate adapted species better suited to current and projected climatic conditions. This reforestation is complemented by an innovative wastewater reuse strategy: treated effluent from municipal wastewater treatment plants is used to irrigate the new plantings and urban green belts, reducing pressure on potable water resources and ensuring sustainability of the green infrastructure.

Rehabilitation efforts also focus on improving the forest's ecological health and recreational function. The restored green belt is reconnected to the urban fabric through pedestrian paths, roadside greening, shaded boulevards and small public gardens, enhancing walkability, reducing urban heat, and improving air quality. This urban forest regeneration aligns with broader metropolitan planning objectives, embedding the forest not as an isolated ecosystem but as part of Casablanca's green infrastructure network.

The use of treated wastewater for irrigation marks a shift in resource management. Rather than relying on scarce drinking water, the city utilizes a growing supply of recycled water, a strategy aligned with national policies aiming to dramatically expand reuse to support public green spaces, industry, and agriculture.

Ghor Al Safi Park, Kerak, Jordan

This approach ensures that the rehabilitated forest and associated urban green belts remain viable even under conditions of drought and water scarcity, offering a model of resource efficient urban greening for water stressed cities.

The projects illustrate the different ways urban forestry is used in each city. In Amman, urban forestry is deployed as a tool for social resilience and inclusive public space, transforming a neglected area into a community hub that meets social, cultural, and economic needs, while improving living conditions. In Casablanca, urban forestry is mobilized as ecological infrastructure: restoring degraded forest ecosystems, enhancing urban metabolism by using recycled water, and integrating green networks into urban mobility and climate adaptation strategies.

Both cases highlight several enabling factors: strategic planning rooted in local ecological conditions, adaptive species selection, integration of water sensitive resource management, and participatory governance involving municipal authorities, civil society and international agencies. These dimensions ensure that urban forestry transcends aesthetic landscaping to become functional, sustainable, and socially meaningful infrastructure.

These urban forestry interventions demonstrate how, with careful design, governance, and ecological sensitivity, cities in arid and dryland regions can reimagine green spaces not as luxury amenities, but as essential infrastructure for health, equity, resilience and sustainability. The lessons from Amman and Casablanca provide replicable models for other cities facing similar environmental and social pressures, proving that nature-based urbanism, when done intentionally, can be both socially transformative and ecologically sound.

OUR NEWS

AUDI & SAUDI FUND FOR DEVELOPMENT SIGN COOPERATION AGREEMENT

The Arab Urban Development Institute (AUDI) has signed a cooperation agreement with the Saudi Fund for Development (SFD) to advance sustainable urban development in Arab cities. The agreement was formalized at the MOMENTUM 2025 Development Finance Conference in Riyadh by H.E. Dr. Anas Mofarreh Almughairy, AUDI Director General, and H.E. Mr. Sultan Abdulrahman Al-Marshad, CEO of SFD.

Reacting to this cooperation agreement, Dr. Almughairy emphasized that the agreement marks a significant step toward supporting shared objectives in the development of Arab cities. It aims to align development initiatives, facilitate the exchange of experiences in urban projects—including housing, transportation, and services—offer specialized training programs in planning, management, and local development, and organize joint knowledge events to advance sustainable urban planning.

Mr. Sultan Al-Marshad stated that the agreement underscores the SFD's commitment to supporting Arab cities through the development of a portfolio of financeable urban projects. He noted that this includes conducting feasibility studies and impact assessments to ensure high-quality, sustainable projects that align with and advance the objectives of both parties.

The agreement provides for the implementation of joint training programs, the exchange of expertise and urban studies, and the organization of workshops and conferences aimed at strengthening institutional capacities. It also includes support for the development of specialized policies and development plans, contributing to the advancement of sustainable urban development efforts across the region. Of note, this collaboration reflects the shared adherence of both parties to building effective strategic partnerships that help address future challenges and advance sustainable development in Arab cities, while enhancing the well-being of their communities.

AUDI & Saudi Fund for Development Sign Cooperation Agreement

AUDI DIRECTOR GENERAL RECEIVES AMBASSADOR OF THE ISLAMIC REPUBLIC OF MAURITANIA TO THE KINGDOM

H.E. Dr. Anas Mofarreh Almughairy, Director General of the Arab Urban Development Institute (AUDI) warmly received at AUDI's Headquarter in Riyadh, H.E. Moktar Ould Dahi, the Ambassador of the Islamic Republic of Mauritania to the Kingdom of Saudi Arabia, in a meeting focused on strengthening bilateral cooperation and exchanging insights on urban development and city planning.

During the meeting, discussions covered AUDI's role in supporting Arab cities, its objectives, operational strategy, and ongoing urban initiatives and projects. The future directions of AUDI's 2030 strategy and its commitment to comprehensive urban development were also highlighted. In addition, the participatory greening project, supported by the Arab Fund for Economic and Social Development, was presented, showcasing its implementation in the Islamic Republic of Mauritania—particularly in the capital, Nouakchott—and outlining its targeted development goals.

H.E. the Mauritanian Ambassador expressed his support for the project, highlighting its significance as a comprehensive urban model for developing Mauritanian cities, and emphasizing its role in promoting greening initiatives and advancing modern urban development trends.

AUDI Director General RECEIVES Ambassador of the Islamic Republic of Mauritania to the Kingdom

AUDI DIRECTOR GENERAL RECEIVES SECRETARY-GENERAL OF MIDDLE EAST GREEN INITIATIVE AND ACCOMPANYING DELEGATION

His Excellency Dr. Anas Mofarreh Almughairy, Director General of the Arab Urban Development Institute (AUDI), received at the Institute's headquarters Secretary-General of the Middle East Green Initiative (MGI), Eng. Ibrahim bin Mohammed Alturki, during an official visit focused on exploring opportunities for cooperation and strengthening coordination on shared environmental and urban priorities.

Over the course of the meeting, the MGI delegation outlined the initiative's objectives and future direction, highlighting potential areas of partnership with Arab countries. Discussions also focused on ways to align the initiative with AUDI's objectives to support joint efforts and advance initiatives aimed at greening Arab cities.

AUDI, in turn, showcased its work strategy, ongoing urban initiatives and projects, and the key directions of its 2030 strategy, highlighting the pathways it provides to promote sustainable urban development.

In conclusion, the discussions highlighted the commitment of both sides to fostering cooperation on developing plant cover policies in Arab countries. By drawing on the expertise of international organizations and leading global practices, the partnership aims to achieve shared goals and promote environmental sustainability across Arab cities.

AUDI Director General Receives Secretary-General of Middle East Green Initiative

AUDI DIRECTOR GENERAL RECEIVES DEPUTY MAYOR OF CASABLANCA AND ACCOMPANYING DELEGATION

His Excellency Dr. Anas Mofarreh Almughairy, Director General of the Arab Urban Development Institute (AUDI), received at the Institute's headquarters the Deputy Mayor of Casablanca, Dr.Abderrahim Outass, and his accompanying delegation during an official visit.

The meeting discussed opportunities for cooperation and ways to expand partnerships with Arab cities across various development fields. During the meeting, AUDI presented an overview of its new 2030 strategy and international training programs, highlighting the initiative to foster partnerships between Arab and international cities through city dialogue platforms.

The Deputy Mayor of Casablanca expressed strong interest in expanding collaboration with Arab cities via this program, noting its potential to strengthen relations and facilitate the exchange of expertise. The deputy mayor's delegation also highlighted Casablanca's ongoing efforts to develop a climate adaptation strategy, emphasizing the city's leadership in the transportation sector. Discussions focused on potential areas of cooperation, the exchange of technical expertise, and the implementation of joint initiatives in sustainable transport, urban planning, and climate change adaptation.

AUDI Director General Receives Deputy Mayor of Casablanca and Accompanying Delegation

AUDI DIRECTOR GENERAL WELCOMES FORMER MAYOR OF STOCKHOLM TO EXPLORE ARAB EUROPEAN COOPERATION OPPORTUNITIES

H.E. Dr. Anas Al-Mughairi, Director General of the Arab Urban Development Institute (AUDI), received H.E. Ms. Anna König Jerlmyr, former Mayor of Stockholm, as part of ongoing efforts to explore cooperation opportunities, exchange expertise, and strengthen partnerships between Arab and European cities.

During the meeting, a comprehensive overview was presented of AUDI's role and its specialized programs supporting urban development, along with a briefing on AUDI's 2030 Strategy and future directions aimed at advancing Arab cities, enhancing their institutional capacities, and expanding international cooperation. The discussions also explored opportunities to leverage the expertise of the former Mayor of Stockholm in supporting the Arab European Cities Dialogue Forum (AECD) and enhancing the exchange of successful experiences and knowledge between both sides.

The meeting further addressed opportunities for cooperation in AUDI's training and capacity-building programs, particularly those aimed at qualifying and training mayors and municipal leaders. Emphasis was placed on utilizing Ms. Jerlmyr's experience to contribute to developing municipal leadership and improving the efficiency of urban governance across Arab cities.

AUDI Director General Welcomes Former Mayor of Stockholm

AUDI HOSTS ROYAL TOWN PLANNING INSTITUTE DELEGATION TO STRENGTHEN GLOBAL COOPERATION

In a move reflecting its commitment to international cooperation in urban development, the Arab Urban Development Institute (AUDI) welcomed a delegation from the Royal Town Planners Institute (RTPI) at its headquarters. The delegation was led by RTPI President Ms. Helen Fadipye, while H.E. Dr. Anas Mofarreh Almughairy, AUDI's Director General, received the guests.

During the meeting, AUDI presented an overview of its strategic directions, programs, and regional initiatives, which are intended to support cities and reinforce their institutional capacities, as well as strengthen the capacities of developmental and municipal institutions.

Ms. Beatrice Crabb, International Lead at ARTPI, outlined the institute's goals and plans. The discussions focused on exploring avenues of potential cooperation in research and urban policy, urban planning, and training and capacity development. The meeting also emphasized the importance of sharing experiences and knowledge between Arab and international cities.

At the conclusion of the meeting, both parties emphasized the importance of solidifying urban partnerships to support city development programs, enhance institutional performance, and expand opportunities for international cooperation in urban planning areas.

AUDI Hosts Royal Town Planning Institute Delegation to Strengthen Global Cooperation

AUDI DIRECTOR GENERAL MEETS WITH HANOVER'S INTERNATIONAL COOPERATION DIRECTOR AND DELEGATION

His Excellency Dr. Anas Mofarreh Almughairy, Director General of the Arab Urban Development Institute (AUDI), received at the Institute's headquarters a delegation from Hannoverimpuls GmbH, Hanover's economic development agency, headed by Mr. Peter Eisenschmidt, Director of International Cooperation, to discuss potential pathways for future cooperation and partnership.

During the meeting, AUDI showcased its programs and initiatives designed to support Arab cities, enhance institutional capacities, and promote sustainable urban practices. The Hannoverimpuls delegation, in turn, highlighted the agency's efforts in driving economic development and fostering international partnerships across multiple sectors.

The discussion also centered on potential collaboration under the Arab European Cities Dialogue Forum (AECD), focusing on connecting stakeholders from both sides, sharing best practices, and coordinating joint initiatives to advance urban development, innovation, and city improvement.

At the conclusion of the meeting, both parties underscored the importance of establishing effective cooperation mechanisms to enhance Arab European dialogues and support efforts to build cities that are more resilient to future challenges.

AUDI Director General Meets with Hanover's International Cooperation Director and Delegation

AUDI DIRECTOR GENERAL MODERATES SESSION ON CITY DIPLOMACY AT THE ISOCARP CONGRESS

H.E. Dr. Anas Al-Mughairy, Director General of the Arab Urban Development Institute (AUDI), moderated a session titled "The Importance of Partnerships in the Success of City Diplomacy" at the International Council of Urban Planners (ISOCARP61). The session explored the expanding role of cities in fostering international collaboration and knowledge exchange to drive global urban transformation, highlighting leading initiatives such as the Arab European Cities Dialogue Forum (AECD) and Riyadh's leadership in advancing these transformative urban efforts.

During the session, urban experts reviewed global urbanization, describing it as the largest demographic shift in human history. The discussion emphasized that "city diplomacy" has become a strategic tool enabling cities to cooperate and share experiences to tackle challenges such as population growth, service delivery, and climate change.

The session further underscored the significance of city partnerships as an effective means to address urban issues, promote the exchange of best practices, and advance sustainable development goals. Riyadh was highlighted as a leading hub for urban transformation, both regionally and globally, demonstrating the city's pivotal role in shaping innovative and resilient urban futures.

AUDI Director General Moderates Session on "City Diplomac

AUDI PARTICIPATES IN "FUTURE CITIES " WORKSHOP IN JORDAN

Dr. Montaser Hiyari, Director of the Capacity Development and Training at the Arab Urban Development (AUDI), participated in a workshop organized by Jordan's Housing and Urban Development Corporation (HUDC), on "Standards and Guidelines for Establishing Future Cities". During the event, he presented a working paper titled "Core and Humanitarian Pillars for Future Cities: A Comprehensive Framework Integrated Plans".

The working paper addressed the development of smart and sustainable cities through a set of key pillars, including:

- Effective governance and data-driven decision-making to enhance coordination and ensure transparency.
- Digital transformation and artificial intelligence to improve service delivery and optimize the management of traffic, energy, and water resources.
- Sustainability and the circular economy, including clean energy solutions, efficient water and waste management, and the expansion of green spaces.
- Smart transportation and integrated mobility systems to reduce congestion and enhance quality of life.
- National identity and local culture, ensuring that new cities reflect Jordanian heritage and societal values.

Dr. Hiyari stressed that the paper presents practical, actionable solutions to support decision-makers and advance the objectives of the Jordanian Economic Modernization Vision 2030. He also underscored AUDI's role as a knowledge partner in fostering the development of Arab cities and promoting a sustainable urban model.

AUDI Director General Meets with Hanover's International Cooperation Director and Delegation

AUDI CONCLUDES WORKSHOP ON ROAD ASSET MANAGEMENT IN PARTNERSHIP WITH MUSCAT MUNICIPALITY

The Arab Urban Development Institute (AUDI), in cooperation with Muscat Municipality, organized a specialized workshop titled "Road Management: Methods for Managing and Investing in Road Assets." Held from November 11–13, 2025, the workshop aimed to equip participants with modern approaches to road management, emphasizing the treatment of roads as valuable municipal assets rather than mere expenses. The training workshop strengthened participants' skills in collecting and analyzing road data, improving planning and maintenance processes, and enhancing overall resource management efficiency and operational sustainability.

The training workshop featured the following key topics:

The concept of road asset management and its role in improving operational efficiency

Modern tools and technologies for road data collection and analysis

Sustainable methods for managing essential facilities and municipal assets

Effective maintenance strategies and enhancing the financial efficiency of road and traffic networks

AUDI Concludes Workshop on Road Asset Management in Partnership with Muscat Municipality

SECOND PERIODIC MEETING OF ARAB CITIES' COMMUNICATION AND PARTNERSHIP OFFICERS HELD BY AUDI

The Arab Urban Development Institute (AUDI) recently organized its second periodic meeting for communication and partnership officers, welcoming over 55 representatives from member Arab cities. This meeting forms part of the Institute's ongoing efforts to enhance joint coordination efforts, develop effective communication channels, and facilitate the exchange of best practices among Arab municipalities, contributing to support the implementation of AUDI's programs and initiatives.

The meeting featured discussions on the following topics:

- An overview of AUDI's programs and initiatives.
- Showcasing the role of communication officers in supporting the participation of municipal leaders in AUDI's events, including the Arab European Cities Dialogue Forum held in Riyadh in May 2025.
- Leveraging opportunities for cooperation with international organizations and development funds, and AUDI's role in representing these entities.
- An open discussion session to address inquiries and feedback from communication officers and to strengthen coordination mechanisms for future collaboration.

Key outcomes from the meeting include:

- AUDI Director General, H.E. Dr. Anas Almughairy, extended the greetings of H.H. Prince Dr. Faisal Bin Abdulaziz Bin Ayyaf, Mayor of Riyadh Region, President of AUDI, to all participants and highlighted the vital role of communication officers in fostering partnerships among Arab cities.

Second Periodic Meeting of Arab Cities' Communication and Partnership Officers Held by AUDI

- Recognition of communication officers for their efforts in facilitating municipal leaders' participation in AUDI's activities, as well as their valuable contributions to training programs, capacity-building initiatives, and urban policy development.
- Highlighting the accomplishments of the Training and Capacity Building Program, which delivered 23 training programs over the past two years, involving participants from more than 20 Arab cities.
- Reviewing the achievements of the Urban Research and Policy Program, which included uploading 400 projects to the Arab Urban Development Portal with contributions from 30 Arab cities and publishing 12 issues of "Mudununa" newsletter.
- Facilitating open discussions, where communications officers shared their observations and inquiries, which were addressed by AUDI's management and programs directors.
- Establishing a working and communication group among member cities to enhance AUDI's role in developing Arab cities by understanding their needs and providing optimal assistance.

AUDI DIRECTOR GENERAL PARTICIPATES IN AL-FUTTAIM DIALOGUE SESSION ON INTEGRATING URBANIZATION AND MOBILITY IN GULF CITIES

Cities across the Gulf Cooperation Council (GCC) are undergoing a pivotal period of rapid urban expansion, underscoring the urgent need for more integrated and coordinated planning approaches. The scale and pace of this growth require comprehensive strategies that align development with long-term sustainability goals.

As mobility, housing, energy, and digital infrastructure continue to expand simultaneously, adopting a cohesive urban approach has become essential. Such integration ensures that these systems work in harmony, supporting the realization of comprehensive and sustainable development goals across the region.

Dialogue Session on Integrating Urbanization and Mobility in Gulf Cities

Against this backdrop, Al-Futtaim Group organized a high-level dialogue session bringing together sector leaders and representatives from government entities, developers, mobility solution providers, and research institutions. The session focused on the importance of integrating urbanization and mobility to shape the future of Gulf cities over the coming decade.

The initiative session was held in collaboration with several key partners, including the Arab Urban Development Institute (AUDI), UN-Habitat, Arup Group, Systemic, and the Emirates Center for Mobility Research (ECMR) at the United Arab Emirates University.

H.E. Dr. Anas Mofarreh Almughairy, Director General of AUDI, made a significant contribution to the discussions, emphasizing the importance of consistent governance frameworks, enhanced intersectoral cooperation, and data-driven planning in addressing the challenges arising from population growth, climate change, and evolving urban demands.

The session concluded that integrated governance models, value-based public-private partnerships, unified data frameworks, and flexible regulatory systems are essential to translating long-term urban visions into practical and implementable solutions. The accompanying work paper further highlighted the importance of holistic planning in building more resilient and efficient cities, while advancing quality of life for urban communities.

AUDI HOLDS ITS 18TH WEBINAR TITLED "SUSTAINABLE SMART LIGHTING FOR FUTURE URBAN ENVIRONMENTS"

As part of its ongoing commitment to promoting inclusive urban planning across the Arab Region, the Arab Urban Development Institute (AUDI) held the 18th session of its "Cities in Action" series, bringing together a wide range of specialists and professionals in urban development.

Dr. Abdulla Difalla, the webinar moderator and urban planning professor, welcomed the participants and gave an overview of the "Cities in Action" series, highlighting its importance in promoting dialogue among specialists and urban development experts throughout the Arab region.

The meeting then began with a presentation by H.E. Eng. Abdulaziz Farid Al Azem, and CEO of Lighting Design Tech Services (DTS), and a seasoned expert in architectural and lighting design with more than 20 years of experience in transforming architectural spaces.

Eng. Al Azm delivered a presentation on smart sustainable lighting for creating future urban environments, highlighting cutting-edge smart lighting technologies and their impact on boosting energy efficiency, reducing carbon emissions, and

Cities in Action Webinar: Sustainable Smart Lighting for Future Urban Environments

enhancing urban quality of life, safety, and security. He showcased leading international examples, including London and Copenhagen, where lighting systems are integrated with smart infrastructure, stressing the crucial role of data and centralized control in creating sustainable urban solutions.

Additionally, Eng. Al Azm emphasized that smart lighting has become a key component of modern urban planning due to its ability to deliver dynamic solutions based on user behavior and its potential integration with Internet of Things (IoT) and artificial intelligence (AI) technologies. He also highlighted notable local examples, including lighting projects in Al-Ula, Diriyah, and the King Abdullah Financial District (KAFD), illustrating how these initiatives blend architectural aesthetics with technological innovation.

Al Azm concluded his presentation by highlighting that the future of urban lighting lies in the increased use of artificial intelligence and the development of integrated lighting systems that enhance sustainability and advance cities toward smart transformation.

At the conclusion of the session, Dr. Abdulla Difalla thanked the attendees for their participation, praised Eng. Abdulaziz Al Azm for his significant contribution to the discussion, and highlighted the importance of continuing these meetings to foster knowledge and experience sharing among urban development specialists in the Arab world.

Cities in Action Webinar: Sustainable Smart Lighting for Future Urban Environments

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