

The Outlook for Green Building in the UAE

2025



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Executive summary (1/2)

Sustainable building involves minimising negative environmental impacts during the construction and operation of buildings through the efficient and mindful use of materials, energy, water resources, space, and ecosystems. Implementing green construction projects can have a positive impact on the climate, as well as on the health and well-being of building users. With the development of ESG practices and sustainability principles in all sectors, interest in green building has been growing worldwide in recent years. *The Outlook for Green Building in the UAE* review aims to assess its potential in the United Arab Emirates.

The research was prepared by Tenet and EmiratesGBC professionals, based on data obtained in a survey of representatives of the construction industry and construction clients. The publication includes the results of an analysis of green building practices in the UAE and around the world.

The study covers the following issues:



The survey results presented in the study are consistent with global market trends in the construction sector. A shift is already being seen towards a circular and lowcarbon economy, and developers are also seeking to consider the comfort and wellbeing of building users. The market is ready to embrace sustainability principles and increase the number of green building projects. Despite growing interest in green building practices, a number of barriers still need to be overcome, including low public awareness of sustainable building practices and a lack of specialised professionals.

Executive summary (2/2)

We engaged industry experts to provide confirmation of the survey results. They noted that the materials presented and the data collected through *the Outlook for Green Building in the UAE* constituted a meaningful step in the development of green building practices in the region, as well as contributing to the transparency of information on the state of green building in the UAE.

According to industry experts, the Outlook can serve as a catalyst for initiating dialogue with public authorities. This dialogue could aim to strengthen the regulatory framework in the field of green building.

We are pleased that the Outlook will be available to the public, and we are confident that the survey materials will be a valuable resource for all stakeholders. The research findings are in line with our vision, reflecting current trends in the transition to green building practices.

To ensure the profitability of green technologies, which receive considerable attention in the Outlook, we advocate for results-oriented design that includes specific KPIs and open communication. Such solutions may include building insulation, lighting modernization, PV panels, centralized cooling, and efficient heat exchangers installation.

Green building solutions should prioritize waste and water reduction and efficient water management. The study <u>reached the same conclusion</u>, stating that 85% and 71% of respondents considered waste reduction and sustainable water use, respectively, an incentive to participate in green building projects.

We believe that partnering with waste management contractors that specialize in recycling various types of construction waste is one of the key aspects of improving resource efficiency. We are therefore pleased that the Outlook highlights the issue of green supply chains and emphasizes the importance of partnerships.

VP at an EGBC Member Company

The Outlook supports EGBC platform members' ability to thrive in a sustainable future by expanding expertise across industries and throughout the GCC region.

Our company is deeply involved in sustainable solutions for green infrastructure. In the design and construction stage, we define proper insulation measures and the use of green building materials.

Energy efficiency measures and retrofitting are effective ways to reduce the environmental impact of a building within its operational life, which is also <u>mentioned</u> in the Outlook. This also cuts down operational costs significantly.

Switching from Portland cement to Ground Granulated Blast Furnace Slag (GGBS) is a big step towards sustainable construction. This is especially relevant within the <u>development of a low-carbon economy</u>.

However, the industry needs more robust and up-to-date policies and financial instruments to move forward with sustainability solutions, as reflected at the <u>end of the</u> <u>Outlook</u>.

Sustainability lead at an EGBC Member Company

Key findings (1/2)

Finding 1

According to respondents for the UAE market, all types of buildings have the potential to embrace a green building project component

70% for each type of buildings

Finding 2

Green technologies challenges in construction:



of respondents cited **the high availability** of green technologies



of respondents cited **the high cost** of green technologies



of respondents cited the low level of demand for green technologies

Finding 3

According to respondents, the most **motivating environmental incentives** for participating in green building projects are



energy efficiency



waste reduction and efficient waste management

% resource efficiency

81%

reduced greenhouse gas emissions

Finding 5

The survey results indicate the potential availability of materials that are suitable for reuse and recycling on the UAE market after the end of a building's lifecycle, but the limited availability of such technologies.



use materials that are suitable for reuse and recycling



use technologies related to the use of secondary (recycled or reclaimed) materials in their projects/activities

Finding 4

Most widely used green technologies in construction projects/activities



use **energy efficient** technologies



use materials that have a minimal negative environmental impact

use technologies to boost efficient water resource management

Finding 6

According to respondents, the most motivating social incentives for participating in green building projects are

creation of a comfortable and safe environment



improved quality of life and well-being

Key findings (2/2)

Finding 7

According to respondents, **the most motivating management incentives** for participating in green building projects are



enhanced company and project (product) reputation



reduced operation costs related to facilities

Finding 8

Most respondents noted that **barriers to participation in green building projects** in the UAE include



the high cost of implementing green projects

57%

imperfections in the regulatory system for sustainable building projects



low public awareness of sustainable building practices



low demand for sustainable building projects

Finding 9

Pursuit of sustainable procurement:

of respondents impose ESG
(environmental, social, and
governance) requirements and/or
provide recommendations when
working with suppliers and
contractors

Source: SW Tenet Survey, 2024.

Finding 10

The UAE is already **implementing sustainable finance initiatives** to wisely allocate investments and ultimately create a competitive green economy, including **establishing various green building financing instruments**



The construction industry: global and national context



Introduction: green building is a strategic response to global construction industry challenges

Currently, about 56% of the world's population lives in urban areas¹. According to a report by the United Nations Human Settlements Programme (UN-Habitat), this figure will rise to 68% by 2050². The combination of rural migration and overall global population growth could result in 2.5 billion more people living in cities by 2050 than today³.

Rapid urbanisation highlights the pressing need to develop the construction sector and create comfortable urban environments. This growth brings a variety of challenges that require a more integrated approach to planning and building.

In response, the construction industry is undergoing a transformation, with a stronger focus on green building practices. As cities expand, **embracing green construction methods becomes essential** for creating liveable spaces that meet the needs of a diverse population while minimising ecological impacts.

1. World Bank. Urban Development overview (2024)

2. UN Habitat. World Cities Report (2022)

Challenge: demand for building materials is growing, along with the construction industry

The rise in industrialisation and the growing population in developing regions are key drivers contributing to the expansion of the construction market. The global construction market is projected to grow by USD 1,179.2 billion, at a compound annual growth rate (CAGR) of 5.31% up till 2028¹.



The growing need for building materials is becoming increasingly urgent. However, this issue can be addressed by developing green building practices through optimising design and construction processes to minimise material consumption.

Sources:

- Technavio. Construction Market Analysis. APAC, Europe, North America, Middle East and Africa, South America. Size and Forecast 2024–2028 (2024)
- 2. UNEP. Global Status Report for Buildings and Construction (2024)
- Architecture2030. <u>Why the built environment?</u>
 IEA. <u>Net Zero by 2050. A Roadmap for the Global Energy Sector (2021)</u>
- 5. OECD. Global Material Resources Outlook to 2060 (2019)

Challenge: the construction industry has a negative impact on the environment as well as a high carbon footprint

Increased construction requires significant resources, which can lead to the depletion of natural resources and environmental degradation. The construction industry has a significant impact on air and water pollution, contributes to waste generation, and also has an impact on biodiversity. In addition, the construction industry contributes to greenhouse gas emissions and impacts the sustainability of ecosystems.



According to the <u>UNEP's Emissions Gap</u> <u>Report 2024</u> the global community is not doing enough to achieve the goals of the Paris Agreement. Recent years have seen alarming trends in the speed and scale of climate change, which are breaking all records.

The <u>Global Status Report for Buildings</u> and <u>Construction</u> states that overall energy demand (by more than one per cent annually) and emissions from the building sector continue to rise. The report emphasises the need for urgent action to address climate change issues.





In the coming years, the construction sector should focus on significantly reducing emissions, improving building performance, increasing the use of renewable energy, and reducing inequalities vis-à-vis access to housing and energy infrastructure. Developing green building practices can help meet these challenges.

Green building is a UAE Green Growth Strategy priority



This growth is fuelled by a number of strategic initiatives, including the government's focus on developing smart cities and policies aimed at attracting significant foreign investment. As the construction sector expands, the importance of sustainable building practices has become ever more prominent in the UAE, as the country seeks to mitigate its environmental impacts and foster a more sustainable future.

In January 2012 His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, launched a long-term national initiative called "<u>The Green Growth Strategy</u>" aimed at establishing a green economy in the UAE. This strategy encompasses six key areas that include a broad spectrum of legislation, policies, programmes, and projects. One of these areas focuses on developing urban planning policies that preserve the environment and seek to boost the efficiency of housing and buildings environmentally.

The green building regulations in the UAE vary from one emirate to another. For example, in 2010, Abu Dhabi implemented the Estidama Pearl Rating System. That same year, Dubai Municipality introduced the Dubai Green Building Regulations and Specifications, which were later replaced by the Al Sa'fat – Dubai Green Building System. In addition, Ras Al Khaimah developed its own Barjeel Green Building Code in 2019.

In 2022 the UAE Cabinet approved the National Green Building Regulation and Standards, which establish mandatory minimum standards for water and electricity consumption efficiency for new buildings throughout the UAE during the design and construction phases. This regulation aims to unify the principles for developing energyand water-efficient buildings at federal level.

In 2024 the Ministry of Energy and Infrastructure launched the National Green Certificates Programme, which is intended to support and enhance the goals of both the National Green Building Regulation and the National Demand-side Management Programme².



For more information about green building regulation in the UAE see <u>«Emirates Green Building Council Market Briefs»</u>

Sources:

Mordor Intelligence. United Arab Emirates Construction Market Size & Share Analysis - Growth Trends & Forecasts 2024-2029 (2023)
 The National Energy and Water Demand Side Management Programme 2050 has been established to target the most energy-intensive sectors in the UAE, including the built environment, transport, agriculture, and industry. The program aims to achieve a 40% reduction in energy demand and a 50% decrease in water demand by the year 2050.

Green building and its development prospects

Green building prioritises environmental stewardship, user well-being, and responsible governance

Green construction, green building

is the practice of constructing buildings using energy- and resource-saving solutions during the entire life cycle of a facility: from site selection to dismantling the constructed facility. Green building projects are part of the concept of sustainable urban development and usually go beyond a single building. Such projects include a well-organised and landscaped adjacent territory, organically integrated into the concept of the district and city as a whole.

A green building offers an opportunity to use resources efficiently by implementing projects that benefit people's health, create a comfortable environment, and provide cost savings.

As defined by The World Green Building Council, the design, construction or operation of a **green building** uses technologies that reduce or eliminate negative impacts and can have a positive impact on the climate and the environment¹. Such buildings conserve valuable natural resources and improve the quality of life of building users.

A green building has a number of features that distinguish it from structures built using the conventional construction approach. These features can be categorised into eight interrelated aspects:



Integration of these aspects is achieved through different levers at each stage of the building life cycle



The green building concept applies to various areas of construction

TOP-3 applications with the greatest potential for green building development, according to respondents



Question:

Evaluate how much you agree with the following statement: "Sustainable building possess great potential for development in the UAE market in terms of property types and production of building materials"



05

Green technologies in the construction industry

Available, but not cheap: green technologies challenges in construction

In recent years the UAE has been developing a regulatory framework to increase the use of green technologies. Green building certification and standards are becoming ever more important in the construction industry, not only for environmental reasons but also from a legal compliance perspective. Moreover, the UAE government offers various incentives to promote green construction, including grants and subsidies.

The survey results showed that a third of respondents noted that green technologies are available in the market. However, prices for them are high, according to more than half of respondents, and demand is low.





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Green technologies can bring advantages

Green technologies in construction

are technological solutions that make it possible to optimise resource use and reduce negative environmental impacts from buildings.

Green technologies can be implemented at any stage of a building's life cycle, starting with design, and continuing through construction, maintenance, renovation, and demolition. They offer the following advantages:



Lowering the cost of building maintenance

Green building technologies allow operation and maintenance costs to be optimised by enhancing energy efficiency and water management. They can also reduce construction costs through efficient resource use.



Boosting the efficiency of construction

Technologies such as the Building Information Model (BMI) help improve the efficiency of the construction process by implementing optimised design solutions and enhancing the accuracy of planning and resource management.



Reducing environmental impacts

Reducing environmental impacts can be achieved by selecting materials manufactured in ways that minimise water and air pollution, as well as by adopting technologies focused on optimising resource use and facilitating reuse. These technologies also help reduce carbon footprints.



Creating a safe and comfortable environment

The integration of technologies that enhance acoustic and thermal comfort, as well as natural light and ventilation, while also addressing building accessibility, boosts the comfort and safety of end users.

A number of types of green technologies are used in the construction market:





ESG- incentives for green building in the UAE



- incentives for green building in the UAE

The UAE faces significant challenges stemming from rapid urbanisation, resource constraints, and escalating energy demands. Climate change is another serious issue as the country has an arid climate, and it is expected that the UAE will face a harsher climate in the future.

In this context, green building emerges as a key practical solution to address these pressing challenges. 41% of energy consumed in the GCC region is in the construction sector¹. Numerous incentives exist in the UAE to foster the adoption of sustainable building practices, thereby supporting the country's commitment to sustainable development.

The most important E-incentives (environmental incentives) for green building, according to respondents, are energy efficiency (95%), waste reduction and efficient waste management (85%), and resource efficiency (81%).

Question:

Assess how the following environmental factors motivate companies to participate in sustainable building projects



Sources:

^{1.} Khoukhi, M.; Gomez, A.; Dar Saleh, A.; Alkaabi, M.; Muhsenah, H. Enhancing Green Building Technologies and Solutions in UAE University Campus: A Comprehensive Assessment and Validation Approach, 2024

Green building incentives: integrated use of green technologies in construction

The integrated use of green technologies in construction is a key aspect of achieving sustainability and reducing the environmental impact of development projects. Incorporating green technologies not only addresses environmental concerns but also enhances the economic and social value of building projects.

According to the results of our survey, respondents use the following green technologies in their projects/activities:



Energy-efficient technologies (81%), materials that cause minimal harm to the environment and users (62%), and technologies to boost efficient water resource management (57%) are the most commonly used green technologies cited by respondents.

Energy-efficient technologies

Goal: efficient energy management

(F)

Energy-efficient technologies include the installation of high-efficiency heating, ventilation and air conditioning (HVAC) systems, LED lighting, smart building technology for energy management, and harnessing renewable energy sources.

Materials that cause minimal harm to the environment and users

Goal: reduced negative impacts on the environment and users

Using materials that cause minimal harm to the environment and users means selecting resources that are sustainably sourced, renewable, or recycled. Materials such as reclaimed wood and recycled metal not only reduce the depletion of natural resources, but also lower the carbon footprint related to production and transport.



Goal: efficient water management



Implementing low-flow plumbing fixtures, desalination systems, and greywater recycling can substantially reduce water usage. Advanced irrigation systems and drought-resistant landscaping further contribute to water conservation.

Energy efficiency

According to the International Energy Agency, the building sector provides an opportunity to secure just over 42% of the energy intensity improvements needed by 2030 to stay within the 1.5°C target¹.

The efficient use of energy resources entails the consumption of less energy to ensure the same level of energy supply for buildings or technological processes in production. Green construction involves designing new facilities in such a way as to reduce energy costs during their operation, implementing measures to boost the energy efficiency of existing buildings, and reducing energy costs during the production of building materials, and constructing and dismantling or demolishing structures.

In the UAE, for example, it is estimated that 60–70 % of electric power is used in air conditioning². The use of energy-efficient heating, ventilation and air conditioning (HVAC) systems, passive cooling techniques, and high-performance insulation can reduce energy consumption in buildings by 40-50%³.



green building projects



Sources:

- 1. UAE MOCCAE. The Third Update of Second Nationally Determined Contribution for the UAE, 2023.
- 2. International Energy Agency Energy. Buildings
- 3. IFC Report. Building Green: Sustainable Construction in Emerging Markets. October 25, 2023

Energy efficient solutions

Energy efficient buildings have many benefits, including reduced heating and electricity costs and greater comfort for building users. These benefits are supported by the results of global research, including the following:



2 Circular Economy

National regulations establish priority areas for building circularity

Two levels of regulatory documents for Circular Economy exist in the UAE: federal and local. The rules for construction waste recycling imposed by Emirates (e.g. Dubai, Ras Al Khaima) tend to be more strict than the nationwide law, thus demonstrating that circularity ambitions are mainly municipality-driven. The rules can be found in the documents presented in section "ESG-incentives for green building in the UAE". More details on the thematic documents in the field of Circular Economy can be found below.



Stakeholders recognise key circularity topics as green building incentives

Globally, the building sector is demonstrating a considerable lack of circularity in current business practices:

of total material consumption

of total volume of waste generated is driven by construction and demolition activities worldwide¹.

The results of our survey show that UAE building sector stakeholders recognise the importance of the two key topics at the heart of the circular economy paradigm:

Resource efficiency

Resource efficiency means 'doing more with less', delivering greater value with less input, using resources in a sustainable way, and minimising their impacts on the environment.

In the context of green building, resource efficiency is understood as reducing resource use and limiting the environmental impacts from buildings throughout their lifecycle – from material extraction for use in the construction phase, through resource use during occupancy and maintenance, to material recovery at demolition².

Waste reduction and efficient waste management

70% of the total volume of solid waste in the UAE is generated from construction and demolition³.

Dubai alone produces almost 5,000 tonnes of construction and demolition waste each day.

Initiatives to recycle construction and demolition waste are gaining momentum in the UAE. For example, AI Dhafra Recycling Facility processes around 5,000-7,000 tonnes of construction and demolition waste per shift, to produce recycled products suitable for use as road base aggregates and structured and non-structured backfill projects⁴.



efficiency as an incentive to participate in green building projects



Systemic circularity requires solutions along the entire building lifecycle (1/2)



Systemic circularity requires solutions along the entire building lifecycle (2/2)





Opting for renewable materials

footprint (FCBA and IRABOIS, 2015)

Using waste from other industries

of the concrete foundation of Burj Khalifa

waste by-product of coal combustion

Using secondary structural elements

of construction and demolition waste

Use stage

in Portland, Oregon, is reused or recycled

of wood is recyclable: thermal insulation

01

02

03

04

Circular solutions provide environmental impacts at every stage of the lifecycle





Increasing housing durability via refurbishment and renovation can save:

billion t of CO₂e

after policy changes (Portland authorities, 2022)

in emissions



in material use (Circularity Gap Report, 2022)



construction materials are needed for upgrading existing buildings vs new construction (ADEME, 2019).

05 End of life stage



Deconstruction rather than demolition

and



of materials can be used in new construction after 20 years of operation thanks to designing based on the 'Buildings As Materials Banks' principle, e.g. Brummen Town Hall in the Netherlands (Ellen MacArthur Foundation, 2022)

Upstream and downstream solutions are both needed for systemic circularity

%

It is crucial to revise business processes and identify strategic leverage opportunities at the beginning of the building lifecycle to minimise waste generation.

of environmental impacts are determined at the



and recycling, indicating the potential availability of such materials on the UAE market after the end of buildings' lifecycle. However, few stakeholders report using technologies related to the use of secondary (recycled or reclaimed) materials in their projects. This could indicate the limited availability of such technologies, which would allow to "close the loop" and fulfill the recyclability potential of materials.

Source: SW Tenet Survey, 2024.

(• Downstream solutions — Affect a product or material after its first use. For example, this can include developing a new collection, sorting, and recycling technologies ² .	Goal: efficient waste	e management		
	Question: What technologies do you use in your projects/	activities?			
	Technologies aimed at construction and demolition waste reuse / recycling	43%	29%	29%	
	Source: SW Tenet Survey, 2024.				
	Sources: 1. Sustainable Product Policy, EU Science Hub, 2018 2. Ellen MacArthur Foundation, 2022	• Use	Planning to use	Do not use	

Best practices: 3D printing promises to make construction more resource efficient



Three-dimensional printing deposits concrete exactly where it is needed, thereby minimising waste – a notable departure from the excesses of conventional construction. In the UAE this technology has already received considerable attention.

3D-printed construction could lower¹



Dubai 3D Printing Strategy

Launched in 2016, it has set a goal to achieve



of buildings in Dubai constructed using 3D printing technology by 2030

In 2020 the 3D Printing Strategic Alliance was created. It comprises Dubai Future Foundation, Dubai Health Authority, Dubai Municipality, Dubai Police, Dubai Electricity and Water Authority, Road and Transportation Authority, Khalifa University, Higher Colleges of Technology and 10 international and local 3D printing technology companies.

Examples of completed 3D printing projects in Dubai

Apis Cor

2021

Administrative building for the Dubai Municipality

Height: 9.5 m

Total area: 640 m²

It is the largest and first 3D printed twostory structure in the world executed by undertaking 3D printing onsite directly under external working conditions and using local components.²

3DXB Group

2024

Private home in Dubai's Al Awir 1 neighbourhood

Height: 4 m

Total area: 303 m²

The house was built in a single session in record time: 190 hours – or around 20 days – using locally sourced concrete.³

Sources:

1. M. Sovetova, J. Kaiser Calautit, Thermal and energy efficiency in 3D-printed buildings, 2024

2. Dubai Municipality, 2021

3. Construction Week, 2024

Best practices: making renewable energy sustainable across the entire lifecycle

As the number of solar panel installations increases, the volume of discarded panels is also expected to escalate to an estimated 350 000 tons in total in UAE by 2050¹.

To be considered truly sustainable, solar power initiatives must consider both the extension of the PV panel use stage (maintenance, refurbishment), and the recovery of materials at the end of life stage.

Life cycle extension

- Removal from landfills, repair and installation of operable solar panels for reuse in shared solar parks
- · Testing the serviceability of panels in homes using the portable testing technology

Recycling

Recycling solar panel elements using chemical processes to recover precious metals



Sources:

- 1. <u>IRENA</u>, 2016
- 2. Institute for Sustainable Futures, 2019
- 3. Recyclia, Recyberica Ambiental, 2023

Best practices: CDW makes construction and demolition processes more circular

Construction and demolition waste (C&D waste, or CDW) consists of the debris generated during the construction, renovation, and demolition of buildings, roads, and bridges. A sustainable materials management approach identifies certain C&D materials as commodities that can be used in new building projects, thus avoiding the need to mine and process virgin materials¹.

In UAE we have several examples of facilities in different emirates that help close the loop and divert materials from landfill.

Sharjah

Operator: BEEAH Group

Opened: 2009

The first of its kind in the MENA region², the CDW Recycling Facility has revolutionised the management of construction waste in the UAE by diverting substantial amounts away from landfills³.

From recovered construction waste, BEEAH produces concrete eco-curbstones, aggregates for road-base construction, recycled concrete eco-interlock, recycled concrete eco-blocks. Other recovered materials include stainless steel, rebar steel, aluminium, and copper⁴.

558,000 t

of C&D waste was processed at the Sharjah facility in 2022⁵



waste diversion rate in 20236

Abu Dhabi

Operator: Al Dhafra Recycling Industries

Opened: 2010

In partnership with Tadweer, the facility produces recycled products to be used as road base aggregates, and structured and non-structured backfill projects.

Al Dhafra Recycling Industries is introducing innovative ways to recycle, e.g. mobile construction waste management services that involve providing on-site solutions for the collection, processing, and responsible disposal or recycling of construction waste.7

Umm AI Quwain and Ajman

Operator: Dulsco Environment

Opened : 2017

Two state-of-the-art CDW recycling plants have been established in Ajman and Umm Al Quwain in partnership with the Ministry of Climate Change and Environment (MOCCAE) and the Ministry of Presidential Affairs (MoPA)¹⁰.

These facilities recycle the entire volume of C&D waste from the two emirates, converting it into aggregates, sub-base, and sand, which can be used in construction projects, replacing up to 40% of virgin materials¹¹.

Sources

- 1. U.S. Environmental Protection Agency, 2024
- 2. <u>WtERT</u>, 2024
- 3. UAE Circular Economy Landscape Report, 2023
- 4. <u>MEED</u>, 2020
- 5. Waste & Recycling magazine ,2024
- 6. Aggregates Business, 2023
- 7 Waste & Recycling magazine ,2024

- Al Dhafra Recycling Industries,2022
- 9. C. S. Dispo, Construction and Demolition Waste in Abu Dhabi: A Case Study of AI Dhafra Recycling Industries , 2024
- 10. Waste & Recycling magazine ,2024
- 11. Aggregates Business, 2023
- 12. Waste & Recycling magazine ,2024
- 13. Waste & Recycling magazine ,2024



processing capacity at AI Dhafra facility per shift⁸

average waste diversion rate from 2010 to 20239

600,000 t

of C&D waste was processed at the Ajman and Umm AI Quwain facilities in 202312



waste diversion rate in 2023¹³

Reduced greenhouse gas emissions 3

The building sector creates an opportunity for emission reductions of 56% by 2030¹, making it a critical sector for the UAE in terms of meeting its net zero targets for 2050 under the Paris Agreement.

An 81.4% reduction in total emissions targeted by the UAE for 2030 will come from the building sector¹.

Key planned policy interventions for direct reductions according to the Third Update of Second Nationally Determined Contribution for the UAE in operational emissions include:





Revising existing building codes to boost the efficiency of buildings

Green building reduces a building's energy consumption by 30% and its carbon emissions by 35% (worldwide average)². In addition, according to the International Finance Corporation (IFC) Report, the transition to green building could reduce global carbon emissions in the construction value chain by around 23% by 20353.



of them consider reducing greenhouse gas emissions to be a **highly motivating** incentive for participating in green building

projects

Sources

- EmiratesGBC. UAE Sustainability Built Environment Blueprint, 2024.
 International Energy Agency Energy Systems Buildings
- 3. IFC Report. Building Green: Sustainable Construction in Emerging Markets. October 25, 2023

4 Sustainable water use

Water conservation is crucial in the arid climate of the UAE, where water scarcity is a pressing concern¹. The annual freshwater supply is less than 1700 m³ per capita². Green buildings can contribute to water conservation through waterefficient fixtures, greywater recycling systems, and rainwater harvesting.

According to the Ministry of Climate Change and Environment, integrating water-efficient technologies can reduce water consumption in residential and commercial buildings by up to 40%. This is significant, in view of the fact that 42% of the UAE's water demand is met through desalination, which is both energy-intensive and costly³. Private developers see potential for savings in operational costs, which makes investing in water-efficient technologies financially viable.

The Ministry of Energy and Infrastructure has unveiled the UAE Water Security Strategy 2036. Once implemented, the strategy will achieve savings of AED 74 billion and reduce emissions of carbon dioxide (CO_2) related to the water desalination process by 100 million metric tons³. 71%

of respondents consider sustainable water use to be an incentive for participating in green building projects



of them consider sustainable water use to be a **highly motivating** incentive for participating in green building projects



A net zero water building is designed in such a way that the volume of alternative water used and water returned to the original source equals the total water consumption of the building.

Sources:

2. Giva A., Dindi A. An investigation of the feasibility of proposed solutions for water sustainability and security in water-stressed environment,

^{1.} World Future Energy Summit. Water shortage concerns inspire fresh thinking in the Middle East

5 Conservation of biodiversity and ecosystems

The UAE's biodiversity faces various threats including habitat loss, climate change, and invasive species. In order to protect and preserve the UAE's precious biodiversity, sustainable development practices, green building techniques, and eco-friendly architecture play a vital role.

Integrating biodiversity conservation into urban planning offers multiple benefits by enhancing ecosystem services, promoting public health, and fostering resilience to climate change. As cities continue to grow, prioritizing biodiversity can play a critical part in creating sustainable and livable urban environments in the UAE.

Conducting Environmental Impact Assessments for new developments in the UAE

Developers and contractors in the UAE are required to undergo an Environmental Impact Assessment (EIA) process¹. A key requirement of the EIA process in UAE construction projects is the submission of a detailed environmental impact assessment report. The report must include a detailed analysis of the project's potential impact on local ecosystems and biodiversity. The EIA process encourages developers and contractors in the UAE to embrace "nature-based solutions" in construction projects.

"Nature-based solutions" in construction involve integrating natural processes and systems into building and infrastructure projects to address societal challenges, such as climate change, biodiversity loss, and urbanization.

Communities around the globe are adopting BiodiverCities by 2030

The BiodiverCities by 2030 initiative from the World Economic Forum is aimed at architects and urban developers across the world whose activities entail the use of "nature-based solutions", supporting the potential of ecosystem services and fostering the conditions for restoring urban biodiversity².



of respondents consider the conservation of biodiversity and ecosystems to be an incentive for participating in green building projects



of them consider the conservation of biodiversity and ecosystems to be a **highly motivating** incentive for participating in green building projects

Preliminary analysis helps select solutions that minimize impacts on biodiversity

When planning the construction of green buildings, a preliminary analysis of the site and landscape is provided in terms of the impact on local flora and fauna. Based on the results of the analysis, solutions are selected that minimise the impact on biodiversity. For example, reproductive seasons and the hibernation of species living in the area are taken into account, or the area of land used is minimised, including placing parking lots inside the building.

Generic Global. Conducting Environmental Impact Assessments for New Developments in the UAE

2. BiodiverCities by 2030. Insight report 2022



-incentives for green construction in the UAE

When considering the drivers for green construction, one should pay attention to the importance of the social aspect, as green buildings can improve social conditions by providing people with a healthy and comfortable living space.

The results of an assessment of the perceived social benefits of a green building indicate that improved quality of life and well-being and the creation of a comfortable and safe environment are the motivating factors for 72% of respondents. An absence of negative impacts on user's health was also considered significant for most respondents: it was judged to be a motivating factor by 43% of respondents and highly motivating for 24%

Question:

Assess how the following social factors motivate companies to participate in sustainable building projects



Green building designs take into account not only the factors that have an impact on the environment, but also social aspects that impact the lives and well-being of green building users. The main factors that have positive social impacts include:

Improved quality of life and well-being



of respondents cited improved quality of life and well-being as being a motivation for participating in green building projects 10%

of them consider this incentive to be highly motivating

A comfortable living environment (which ensures a high quality of life and improved well-being) in green buildings is achieved through a number of solutions, which include natural ventilation and lighting systems, installing digital climate control systems, and applying the principles of biophilic design¹ in the decoration of premises.

Creation of a comfortable and safe environment



of respondents cited the creation of a comfortable and safe environment as being a motivation for participating in green building projects 5% of them consider this incentive to be highly motivating

Reducing negative social impacts is achieved by creating a safe and comfortable environment for all users.

Hence green buildings should encompass compliance with the operational safety standards of buildings, and designing a space that takes into account the needs of people with reduced mobility.

No negative impacts on user health



of respondents cited an absence of negative impacts on user health as being a motivation for participating in green building projects 24%

of them consider this incentive to be highly motivating

Negative health-related factors that can arise during construction include the use of toxic and allergenic materials. Health is also affected by the air quality in buildings and the lighting system. Green building tools can reduce the impact of these factors. For example, greener building materials reduce the risk of disease caused by toxic compounds, while efficient ventilation systems, purifying filters, and digital air quality monitoring systems reduce the risk of lung disease, and quality lighting reduces the risks of eye diseases.

A people-centric built environment approach can drive the transition to a sustainable urban environment

A negative aspect of the housing and construction space in the Middle East region is the lack of a people-centric approach¹, which has come to the fore in recent years, as a rise in refugees and younger people has created issues vis-à-vis a lack of homeownership and affordable housing. However, thriving development, especially in the current situation, requires industry participants to take into account the factor of practices that are responsive to people's needs and interests. Residents of these new buildings enjoy a healthier, more environmentally aware lifestyle while at the same time contributing to the UAE's broader sustainability goals³. In addition, building in the UAE with social sustainability in mind will create better places for people and enable them to live and work in environments where they can realise their full potential.

Social practices in green building projects seek to ensure the comfort, safety, and well-being of building users. These practices contribute to boosting the productivity of people working in these buildings², and they also enhance people's quality of life and health. In addition, S-factors play an important role in shaping a sustainable urban environment as a whole.

Outdoor factors

Green buildings go beyond the individual building and take into account how well they integrate into the urban infrastructure



of respondents take into account the factor of being within walking distance to infrastructure (grocery stores, pharmacies, medical facilities, etc.) and another 5% plan to



of respondents take into account the factor of being within walking distance to green areas and another 5% plan to of respondents take into account the factor of the transport accessibility of a building

and another 10% plan to



of respondents take into account the factor of biophilic design and another 14% plan to

Source: SW Tenet Survey, 2024

Sources:

- 1. The World Green Building Council, Sustainable and Affordable Housing, 2023
- 2. Economic, environmental, and social benefits of green building; 2021; AlfaBuild; 20 Article No 2005. doi: 10.57728/ALF.20.5
- 3. Gulf News. Abu Dhabi green buildings to improve environment and health.
- 4. Building Enclosure. Looking to the Future: Diversity, Equity and Inclusion in the Building Industry, 2022.
- 5. Diversity, equity and inclusion (DEI) practices include policies and programs that promote the representation and participation of different groups of people.

Indoor factors

The quality of the indoor environment is very important, as people spend 85-95% of their time indoors¹



of respondents take into account the factor of good air quality / thermal comfort and another 14% plan to



of respondents take into account the acoustic comfort factor and another 10% plan to



of respondents take into account the factor of the comfort and quality of an indoor environment and another 19% plan to



of respondents take into account the factor of creating a comfortable space, with due regard for respective regulations, and another 10% plan to

A comfortable working environment directly correlates to increased productivity. Studies have shown a rise in labour productivity in green buildings, ranging from 0.4% to 18%¹



of respondents take into account the factor of the operational safety of a building



of respondents take into account the factor of adaptability to the needs of people with limited mobility and another 14% plan to

Sustainability in all spheres requires ensuring that everyone can advance and grow, regardless of their demographics².

Incorporation of DEI³ practices in green building promotes the values of equal treatment and inclusion for all, which in turn helps bring about a just and sustainable world

Source: SW Tenet Survey, 2024.

Sources:

- 1. Economic, environmental, and social benefits of green building; 2021; AlfaBuild; 20 Article No 2005. doi: 10.57728/ALF.20.5
- 2. Building Enclosure. Looking to the Future: Diversity, Equity and Inclusion in the Building Industry, 2022.
- 3. Diversity, equity and inclusion (DEI) practices include policies and programs that promote the representation and participation of different groups of people.





-incentives for green construction in the UAE

In addition to the impact of social and environmental incentives on green building, management factors also serve as important incentives. These factors include compliance with sustainable standards and regulations, reduced operating costs, access to green financing options, increased attractiveness of buildings due to rising interest in sustainable products, and an enhanced reputation for a company or its products.

The most motivating G-incentives (governance incentives) for green building, according to respondents, are enhanced company and project (product) reputation (95%), reduced operational costs related to facilities (91%), and compliance with sustainable standards (81%).



Assess how the following management factors motivate companies to participate in sustainable building projects



Enhanced company and project (product) reputation

ર્સ્ટ્રેક **95**%

of respondents indicated that having an enhanced company and project (product) reputation is a motivation to participate in green building projects



of them consider this incentive to be highly motivating

Being committed to social and environmental practices can increase the level of trust on the part of users of buildings and improve a company's reputation. Also, the transparency of sustainability activities of companies; embracing a responsible approach towards the environment and society; and the safety, accessibility, and convenience of housing infrastructure can boost a company's attractiveness to investors and future building users.

Reduced operational costs related to facilities

<u>\$40</u> 91%

of respondents indicated that reduced operational costs related to facilities is a motivation to participate in green building projects 48% of them consider this incentive to be highly motivating

Green buildings can lower operating costs by up to 19%, according to a study by Smart CRE¹. This reduction is primarily due to increased energy and water efficiency, which leads to substantial savings in utility bills and lower maintenance expenses. Green buildings generally lower maintenance costs by about 12%¹. This is attributed to the use of durable, sustainable materials and efficient systems that require less frequent repairs.

In addition to lowering operational costs, green buildings offer further advantages such as increased asset value and higher rental prices. This trend is bolstered by growing interest in Environmental, Social, and Governance (ESG) compliance among companies, as well as an overall demand from tenants for sustainable living and working environments.

Compliance with sustainable standards



of respondents indicated that compliance with sustainable standards is a motivation to participate in green building projects 48% of them consider this incontive to be highly

incentive to be highly motivating

Compliance with green building standards can positively impact a company's image, enhance a building's appeal to potential users, and increase its overall value. In addition, adhering to sustainability standards can bring financial benefits. For example, the Dubai Land Department introduced incentives for developers to embrace sustainability, including tax breaks and lower fees for green buildings². These incentives can help offset some of the costs related to meeting sustainability standards and requirements.

Sources

Smart CRE. Financial Benefits of Green Buildings - Are They Expensive? (2022)

2. UNIQUE properties, How Dubai is Becoming a Hub for Sustainable Real Estate Developments (2024).

Wider access to green finance instruments



of respondents indicated that wider access to green finance instruments is a motivation to participate in green building projects



of them consider this incentive to be highly motivating

The banking sector in the UAE is financing green building projects to facilitate the country's transition to a more sustainable economy¹. Financial institutions are introducing a variety of sustainable finance products and services, including green loans, sustainability bonds, blended finance, and transition financing. For more information see the <u>Green finance</u> for the construction sector section

Greater interest in sustainable building/products



of respondents indicated that greater interest in sustainable building/products is a motivation to participate in green building projects

14% of them consider this incentive to be highly

motivating

Public awareness is increasing surrounding the environmental impacts of construction and the health and well-being benefits offered by green buildings, and interest in these buildings is likely to grow further. Such heightened interest, in turn, may enhance the market appeal of green buildings.

Sources:

1. KPMG. Eco-financing the future: The role of UAE banks in climate transition (2024).

Green supply chains in the construction industry

To get a successful project outcome it's important to choose the right partner

Working with suppliers and contractors is a key part of implementing green construction projects. And selecting the right partner can greatly influence a project's success: its cost, time frame and efficiency. Green construction projects involve joint work from manufacturers and suppliers of building materials, designers, and other participants in the construction industry at each stage of the facility's life cycle:



47 | Green supply chains in the construction industry





Sustainable procurement

Leading

UAE developers¹ are committed to transparency, integrity, accountability, and compliance with global standards, including responsible procurement practices.

01

Suppliers and contractors are made aware of responsible procurement requirements through communication of developers' conduct policies, whistleblowing procedures, and relevant clauses in contracts.

02

ESG criteria against which suppliers are regularly screened include labour standards, ethics policy, energy efficiency (ISO 50001), environmental policy (ISO 14001), OHS management system (ISO 45001), and quality management system (ISO 9001) requirements.

03

Developers are increasing their focus on local suppliers, as locally sourced materials can significantly reduce carbon emissions related to transport to project sites and can also foster communitybased initiatives and opportunities.

04

Special training sessions on responsible sourcing as well as health, safety and the environment are conducted for employees, suppliers, and contractors.

Question:

Does your organization impose ESG requirements and/or provide recommendations when working with suppliers and contractors?

- We impose strict requirements, each of which is mandatory for compliance
- We impose a set of mandatory requirements and provide additional recommendations
- We provide recommendations that are voluntary for compliance
- We do not impose any requirements or provide any recommendations



and/or provide recommendations when working with suppliers and contractors

Source: SW Tenet Survey, 2024.

 Respective Integrated annual report 2023, Sustainability reports 2023, Environment, Social and Governance (ESG) Report of the following companies were analyzed: Emaar Properties PJSC, Dubai Holding, DAMAC Real Estate Development Limited, Aldar Properties PJSC, Majid AI Futtaim group, Sobha Realty.

:=

Sustainable procurement

Low carbon supply chain

Aldar Properties

100%

suppliers screened on sustainability criteria in 2023

600+

suppliers trained on Aldar's sustainable procurement programmes



suppliers signed Real Estate Climate Pledge

Low carbon concrete policy implemented across all new projects in 2023

Aldar evaluates the environmental performance of all their suppliers, aiming to work with those who are aligned with the company's Net Zero and sustainability priorities.

In 2023 the company introduced a new training at the start of each construction project, designed to ensure that everyone understands sustainability requirements, the data collection process, and can contribute to wider Aldar Net Zero objectives.

Every year the company revises its sustainability criteria to assess suppliers during the tender stage and include environmental performance specifications in its contracts with business partners.

Aldar collects Environmental Product Declarations from contractors for the 16 main materials the company uses in construction, with a focus on steel and concrete.

To ensure a sufficient supply of green concrete in the future, Aldar has signed an MoU with Cemex to provide green cement for use in their construction projects. Cemex green cement offers a 70%-90% reduction in CO_2 emissions compared to conventional concrete. Aldar has also signed an MoU with Emirates Steel Arkan to explore opportunities for integrating sustainable and low-carbon steel rebar in construction projects.



Green finance for the construction sector

The public sector supports green finance initiatives

Green finance is an important tool for stimulating green construction and the sustainable development of the construction industry. It helps attract additional investment in projects aimed at boosting resource efficiency.

According to a IFC report¹, the level of investment in electrified brown buildings with cleaner energies and lower-emission new buildings and materials than conventional alternatives will amount to \$1.5 trillion in emerging markets in the next decade. An important advantage of green finance is the ability to guarantee the long-term sustainability of projects.

The UAE is already implementing sustainable finance initiatives to wisely allocate investments and ultimately create a competitive green economy, including establishing various instruments for green building financing.

Public Sector Led-Activity

National level





Launched: 2019

Developed by:

The Securities and Commodities Authority

The plan comprises seven key pillars and provides an appropriate framework that shifts the behaviour of industry participants to achieve long term sustainability.

The seven pillars are:

- · Taxonomy, classification, and standard setting.
- Legal and regulatory framework.
- · Market platform and investment instruments.
- · Corporate governance and stewardship.
- Transparency and disclosure.
- · Awareness and education.
- · Awards and incentives.

Regional level



Green finance is coming of age

Public and Private sector cooperation

Dubai Declaration on Sustainable Finance

Launched: 2016

Developed by:

Financial institutions based in the UAE

The Declaration recognises the important roles the finance sector plays in facilitating sustainable development and a climateresilient, inclusive green economy and it endorses the UAE government's commitment to the Paris Climate Agreement and Sustainable Development Goals, as well as the sustainable development of the country in line with the UAE Green Agenda 2015-2030.

Abu Dhabi Sustainable Finance Declaration

Launched: 2019

Developed by:

Abu Dhabi Global Market (ADGM) under the auspices of the UAE Ministry of Climate Change and Environment, the Central Bank and the Securities and Commodities Authority

Participants agreed to collaborate to create a framework for fostering and integrating green and sustainable investments in the Emirate of Abu Dhabi, the UAE, and the wider region and to expedite a constructive dialogue on sustainable finance among stakeholders.

Green building support initiative

National Green Certificates Program

Launched: 2024

Aimed at promoting environmentally friendly building practices, in line with the objectives of the National Demand-side Management Program and the National Green Building Regulation. It was launched in July 2024.

It sets specific building classification standards for energy efficiency, water management, indoor air quality, and the use of sustainable building materials.

The Ministry of Energy and Infrastructure (MoEI) will offer technical support and consultations for participating businesses to ensure an optimal level of sustainability.

To support the program, MoEI signed four memorandums of understanding (MoUs) with:

- First Abu Dhabi Bank (green finance solutions aimed at enhancing the built environment sector)
- Aldar Properties (green finance solutions specifically tailored to enhance the built environment sector)
- Pact Carbon (support in accessing global markets to sell carbon credits)
- Meagle Energy (energy audits in accordance with the standards and guidelines set forth by MoEI)

AED 1 trillion

the financial sector's landmark commitment to mobilise in sustainable finance by 2030 (UAE Banks Federation, COP28, 4 December 2023)



\$8.7 billion

in green bonds issued in the UAE in 2023

(Compared to 2022. <u>IFC Report.</u> <u>Emerging Market Green Bonds 2023.</u> <u>May 2024</u>)

18% world sustainable sukuk

issued by the UAE as of Q1 2024³ (% of value of cumulative issuance)

(Guidance on Green, Social and Sustainability Sukuk. April 2024.

The Guidance is the result of a collaboration between the International Capital Market Association (ICMA), the Islamic Development Bank (IsDB) and the LSEG (London Stock Exchange Group).

The first–ever Gulf Cooperation Council sovereign sustainable bond of \$1 billion

was issued by the Government of Sharjah in February 2023. The government has committed to using an amount at least equal to the net proceeds of the Sustainable Notes to finance and/or refinance eligible projects and/or expenditures in accordance with the Government's Sustainable Financing Framework, including projects related to the acquisition, development, construction, and refurbishment of buildings, which have received, or expect to receive, certification according to third-party verified green building standards.

The government successfully allocated another \$750 million and €500 million in sustainable bonds in March and July 2024, respectively.



Property developers lead sustainable sukuk issuance

Property developers Majid Al Futtaim and Aldar are prominent sustainable sukuk issuers, leveraging this instrument to fund green building projects.



Source: ICMA Guidance on Green, Social and Sustainability Sukuk, April 2024

Majid Al Futtaim

- Green Finance Framework developed in 2019
- USD 4.95 billion raised through multiple sustainable instruments
- World's first benchmark corporate Green Sukuk issued in 2019 (worth USD 600 mln)
- Second Green Sukuk (worth USD 600 mln) in 2019, Green Hybrid Bond (worth USD 500 mln) in 2022, Third Green Sukuk (worth USD 500 mln) in 2023
- Proceeds allocation category: Green Buildings
- **Impact metrics**: level of certification by property, GHG emissions reduction, energy consumption reduction, water consumption reduction
- 31 assets certified using LEED (9 Gold and 22 Platinum)

Aldar Properties

- Green Finance Framework developed in 2023
- AED 4.8 billion raised through green financing instruments only in 2023
- First Green Sukuk (worth USD 500 mln)
 issued in May 2023
- Second Green Sukuk (worth USD 500 mln) issues in May 2024
- AED 2.5 billion raised in sustainabilitylinked loans in 2023
- Proceeds allocation category: Green Buildings
- Impact metrics for green buildings category: level of certification by property, energy efficiency gains, estimated avoided GHG emissions, annual energy savings
- LEED certified (Gold) Abu Dhabi Global Market (four office towers namely Al Sila, Al Sarab, Al Maqam, and Al Khatem)

Green building obstacles in the UAE

From high costs to few specialists: green building obstacles in the UAE

Despite the Middle East region achieving certain developments and a shift towards more sustainable practices in design and other construction stages¹, obstacles remain to green building in this region, and the UAE in particular.

TOP-5 key barriers to participation in green building projects:



Barriers to participation in green building projects High cost of implementing green projects 33% 38% 29% Low public awareness of sustainable 19% 5% 19% 19% 38% building practices Imperfections in the regulatory system 5% 14% 24% 38% 19% for sustainable building projects Low demand for sustainable building 10% 10% 29% 29% 24% projects 5%10% 38% Lack of specialised professionals 24% 24% Potential increase in project timelines 14% 29% 14% 33% 10% for sustainable building projects Inaccessibility of sustainable building 10% 14% 43% 29% 5% technologies More likely not to be a barrier More likely to be a barrier It is a barrier It is a key barrier Not a barrier Source: SW Tenet Survey, 2024.

Sources:

1. The World Green Building Council, Sustainable and Affordable Housing, 2023

High cost of implementing green projects



According to experts' estimates¹, the construction of green buildings requires more capital expenditure than similar buildings in conventional construction. This is primarily due to the use of the latest engineering systems in green projects.

A comparative analysis¹ indicates that the construction cost of a green industrial manufacturing facility is 37% greater than that of a comparable conventional building. However, operational, maintenance, and end-of-life costs for green buildings yield savings of 28%, 22%, and 11%, respectively. Consequently, this leads to an overall cost reduction of 21% for green buildings.

Low public awareness of sustainable building practices



A key barrier to green building development is low public awareness surrounding sustainable building practices in general and the benefits of green buildings in particular. The latter in turn leads to low demand for green building projects and a lack of interest in developing this area in society⁴.

Imperfections in the regulatory system for sustainable building projects



Although national and municipal green building standards have been elaborated in recent decades, the regulation of green building needs further development.

Issues pertinent to the UAE include:

- lack of updates in many regions of the country to local Building Regulations, which remain based on older international codes²
- inconsistency in the requirements of local building regulations, which creates challenges for construction firms operating in multiple emirates²
- lack of a people-centric approach³ and DEI regulation
- lack of a policy for distributed renewable energy at national level²
- undeveloped requirements relating to the retrofitting and performance of existing buildings²

 For more information about the UAE green building regulatory context see <u>«UAE Sustainability Built Environment Blueprint»</u> by EmiratesGBC

Sources:

- 1. Weerainghe, Achini & Ramachandra, Thanuja. (2018). Economic sustainability of green buildings: a comparative analysis of green vs nongreen. Built Environment Project and Asset Management.
- 2. EmiratesGBC. UAE Sustainability Built Environment Blueprint, 2024.
- 3. The World Green Building Council, Sustainable and Affordable Housing, 2023

4. Karji, Ali & Ghorbani, Zahra & rokoui, saeed & Tafazzoli, Mohammadsoroush. (2021). Revisiting social aspect of green buildings: barriers, drivers, and benefits.

Low demand for sustainable building projects



Despite all the benefits offered by green building and the growing popularity of sustainable practices in various fields, demand for these projects remains low. For over half of respondents this factor poses a barrier to implementing green building projects.

Lack of specialised professionals



Green building requires specialists who can take into account environmental, social, and other relevant factors when implementing such projects. Such specialists are needed both to utilise green building technologies and to assess the potential and actual environmental, social and economic impacts of a project. The dearth of specialists in these areas is a barrier that prevents green building projects from being fully executed.

From May 2023 to April 2024 demand for workers skilled in sustainable construction in the UAE surged by 25%.²

Potential increase in project timelines for sustainable building projects



Over half of respondents stated that a potential increase in project timelines for sustainable building projects poses a barrier, as it can take longer than similar conventional building projects.

According to some studies¹ 15.91% of traditional projects were delayed, while 32.29% of green construction projects were completed behind schedule. Factors causing delays include the speed of decision making by clients and project teams; coordination between key parties, the experience level of consultants, and challenges when it comes to financing projects.

Inaccessibility of sustainable building technologies



Sustainable building materials and technologies in the UAE are not as accessible as the market demands. Surveys³ show that the reasons behind this include a general lack of awareness when it comes to these materials and technologies. Over a third of respondents recognise this factor to be a barrier.

Sources:

- Hwang, Bon-Gang & Leong, Lay. (2013). Comparison of schedule delay and causal factors between traditional and green construction projects. 10.3846/20294913.2013.798596.
- 2. BW People. <u>Sustainable Construction Roles In UAE Offer 48% Higher Pay,</u> <u>Attracting Skilled Indian Workers</u> (Oct. 2024).
- 3. EmiratesGBC. UAE Sustainability Built Environment Blueprint, 2024.

Overcoming the various barriers

Enhancing the efficiency of green building project implementation



Research shows¹ that the most common reasons behind the high cost of green buildings compared to traditional buildings are the cost of more sustainable building materials and the availability of these materials and technologies. In addition, 'hidden' costs are incurred during the planning, design, and construction phases of a project, caused by factors such as setting goals for the project, integrating project teams, and launching a whole team design approach.

Therefore, to lower the cost of constructing green buildings it is necessary to increase the productivity of project teams in order to reduce the time spent in the planning and design phases. Also, since for the UAE the underutilisation of materials and technologies is also due to a lack of knowledge surrounding them, there is a need to raise awareness among industry professionals. All these issues can be solved in the long term by promoting education in green building and sustainability in general. In the short term, the UAE should attract existing professionals, including those from other countries, to green building projects, and offer them decent working conditions and high remuneration.

Factors that increase overall project costs are also caused by green building risks associated with new requirements, methods, and technologies. A green building concept should be integrated into a project at the feasibility stage, thereby minimising the initial as well as the life cycle costs of a project.

Developing the regulatory system for sustainable building projects

The development of the regulatory system in the UAE may include²:

- Updating Local Building Standards in accordance with modern standards and norms.
- Harmonising national and local building regulations to eliminate inconsistencies in requirements that thwart project planning / implementation.
- Enhanced regulations for decentralised renewable energy, incentivising roofmounted or built-in solar power.
- Access to local renewable energy certificates and power purchasing agreements, which should attract investment from the private sector into the transition of the electricity supply.
- Introducing minimum requirements for retrofits, including certification and a performance-monitoring system, building on existing local initiatives.
- For more information about the UAE green building regulatory context see «UAE Sustainability Built Environment Blueprint» by EmiratesGBC

Raising awareness – growing demand

The lack of stakeholder interest in implementing green building projects is due to a lack of public knowledge surrounding the benefits of green building. For example, **it is necessary to raise awareness** over the fact that despite higher costs during the construction phase, the operation of green buildings is 20-30% cheaper¹ than conventional buildings due to resource-saving technologies. Information about the environmental and social benefits of green building can be disseminated to the general public via educational tools and media, as well as among stakeholders. In this way, the wider dissemination of knowledge can foster demand for green building projects.

Sources:



^{1.} Exploring the Barriers to Managing Green Building Construction Projects and Proposed Solutions; https://doi.org/10.3390/su16135374

^{2.} EmiratesGBC. <u>UAE Sustainability Built Environment Blueprint</u>, 2024.

Respondents

The review is based on data obtained from a survey of representatives of the construction industry from the UAE conducted during Fall 2024*.

Construction material manufacturers, contractors, representatives of management companies, and other stakeholder groups participated in the survey.





Rounding values

Due to rounding, the totals of responses may differ slightly from the sum of the responses (no more than by 1).

63 | Contact information

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