Sustainability in the Middle East: achievements and challenges

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The built environment industry, being among those which generate the most pollution, offers significant opportunities to alleviate environmental pollution and promote the sustainable use of resources. The Middle East region, hindered by natural constraints and underlying political and social issues, has tried over the years to shift towards more sustainable practices in design and construction. This review article sheds light on the achievements and challenges of sustainable development in the Middle East.

With the development of green building codes in the United Arab Emirates (UAE), Qatar, and Lebanon, the Middle East region has strived to become more environmentally friendly, with record-breaking developments. The region currently has four well-established green building codes: the Abu Dhabi Urban Planning Council’s Estidama; Dubai Municipality’s Green Building Regulations; the Lebanon Green Building Council’s ARZ; and GORD’s GSAS: Global Sustainability Assessment System, in Qatar. Green building codes in the region demonstrate the efforts and investments of governments and organisations in streamlining sustainability in the construction industry. Whether it is for existing buildings or new construction projects, green building codes set a holistic framework that guides design teams toward reducing resource consumption, i.e., energy, water and other natural resources, all while alleviating consequent environmental pollution.

Corporate social responsibility (CSR) has been another venue for private corporations to tackle community engagement and sustainable development. Regional CSR programmes have integrated sustainability concepts to give back to the community in which they are operating, and those initiatives include health and safety, education, eco-friendly solutions and community investments.

These efforts are hindered by natural and operational challenges that the region is forced to face. Some of the challenges faced are scarcity of water, lack of awareness in sustainability and environmental issues (despite the high education levels), and operational challenges such as retrofitting existing buildings.

Middle Eastern countries have throughout history proven their leadership and resilience with regard to all kinds of challenges, and in the realm of sustainable development are following a similar path.

Keywords: green buildings; sustainable development; corporate social responsibility; Middle East; green building code

Introduction

When encountering the term ‘sustainable development’, industry professionals return to its original definition, as created by the United Nations (UN) World Commission on Environment and Development: ‘Development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ [1]. The three dimensions of sustainability that typical development is based upon are: economic, environmental and social. At this point in time, in a world where a significant portion of the population still lives in poverty, where consumption patterns have doubled, and where environmental pollution is on the rise, living sustainably is imperative.

The construction industry, being one of the industries that generates the most pollution, offers significant opportunities to alleviate environmental pollution and overconsumption of resources. The Middle East, with its growing population and improved tourism sector, encompasses increased demands for infrastructure, development and building projects of all kinds, from retail and offices to residential. The total construction projects value in 2013 in the Gulf Cooperation Council (GCC) alone was estimated at US$1.67 trillion, with Saudi Arabia and the United Arab Emirates (UAE) accounting for more than 68% of that [2]. Needless to point out that with great opportunities lie great responsibilities, and as the world is moving towards more sustainable systems, the Middle East has been trying but struggling to excel due to underlying economic, political, social and technical difficulties. This article will analyse the challenges and opportunities that some Middle Eastern countries have been facing by summarising major achievements, examining difficulties and showcasing future plans in the built environment industry.

Green building codes

Sustainability – a relatively new discipline – needs to be developed as an overall approach and not as an entity. Green building codes are introduced as regulatory frameworks for people to understand, grasp and adopt...
over time. Following international building guidelines such as Leadership in Energy and Environmental Design (LEED) and the BRE Environmental Assessment Method (BREEAM), Middle Eastern countries have initiated the development of their own green building regulations, which reflect their unique environments and their market needs.

**GSAS – Qatar**

The Qatar Sustainability Assessment System (QSAS), now renamed the Global Sustainability Assessment System (GSAS), was one of the first green building rating systems to be created in the Middle East, published in 2009. GSAS, developed by the Gulf Organization for Research and Development (GORD), a subsidiary of the QATARI DIAR Real Estate Investment Company (QD), aims to promote sustainable and healthy practices in the construction industry in Qatar and the entire Middle East region. The code was developed using a ground-up approach and is the result of a review of all existing green building regulations around the world [3].

In fact, several countries in the Middle East and North Africa region expressed interest in adopting GSAS as a unified green building code for the region.

GSAS’s sustainability criteria are grouped into eight categories: water, energy, indoor environment, cultural and economic value, site, urban connectivity, material, and management and operations. The most weighted categories are energy and water, which accentuates and reflects the country’s main sustainability challenges.

**Estidama – UAE**

The UAE and specifically Abu Dhabi have pioneered the effective development and implementation of green building codes. With the birth of the Pearl Rating System, managed by the Abu Dhabi Urban Planning Council, Abu Dhabi published its green building codes for buildings, villas and communities and enforced a 1-Pearl certification on private developments and a 2-Pearl certification on government projects [4].

Four pillars constitute the basis of Estidama, namely the three main pillars of sustainability – environment, economic, and social – plus an extra entity: cultural. The code was developed to promote the efficient use of resources and reflect the city’s specific needs and complement Plan 2030, which aims to optimise the urban planning scheme in the city.

Estidama’s sustainability criteria are grouped into seven different categories: integrated development process, natural systems, liveable villa/building/community, precious water, resourceful energy, stewarding materials, and innovating practice. The most weighted categories are precious water and resourceful energy, which emphasise their significant contribution towards a more sustainable project.

**LGBC – Lebanon**

The Lebanese Green Building Council (LGBC), a non-profit non-governmental organisation founded in 2008, aims to promote sustainability practices in the construction industry by creating the Lebanese certification system for buildings that adopt environmental parameters to alleviate environmental pollution in the country and promote a healthier quality of life. The LGBC created the ARZ building rating system in collaboration with the International Finance Corporation (IFC) and had the kick-off meeting in February 2012.

ARZ incorporated international environmental standards and focused on energy and water conservation, all while responding to Lebanon’s unique conditions. The ARZ rating system evaluates the energy efficiency of existing commercial buildings in the country to optimise resource use and consequently alleviate energy costs and environmental pollution [5].

With minimal sustainability awareness in the country and the existing political instability, and taking into consideration that the rating system is not mandatory, only a few projects were certified.

**Dubai green building regulations, UAE**

Dubai’s own green building code, the Green Building Regulations, was released by the Dubai Municipality in 2011 and made mandatory for all governmental projects. The code was then made mandatory for all private developments through the release of the Dubai Municipality Circular No.198 of 2014, effective March 2014.

The Green Building Regulations of Dubai were developed in line with the best international efficiency standards but customised to Dubai’s specific needs and conditions. The main aim of these regulations is to improve the performance of buildings in Dubai by reducing the consumption of energy, water and materials, therefore improving the quality of life [6].

The Green Building Regulations and Specifications in the Emirate of Dubai, of Dubai Municipality, do not provide different tiers of certification, but rather present a set of regulations and guidelines for all buildings to follow.

**Achievements and opportunities**

Whilst there exist challenges in embedding sustainability within the construction sector in the region, the above examples of codes and rating systems are notable successes and demonstrate the important role of the public sector in driving sustainable building practices. For instance, the United States (US) Green Building Council released the Top 10 green building nations outside the US [7]. The UAE ranked ninth among the top 10 nations, with the biggest energy-efficient developments outside the US, of which the Dubai Electricity and Water Authority Headquarters is
noted for having a LEED Platinum rating. The UAE was the only Middle Eastern country to be listed among the 140 countries across the globe that have implemented LEED, which demonstrates private sector initiatives in the UAE of developers and architects choosing to implement sustainable approaches on their projects.

Similarly, Kuwait plans on building the new Kuwait International Airport – Passenger Terminal and is to achieve a LEED Gold certification. The innovative design will incorporate a major reliance on solar power, making it a one of a kind in aviation [8].

Other landmark projects include the Masdar Headquarters and Siemens Headquarters located in Abu Dhabi, UAE, which achieved a 4-Pearl Estidama PBRS Rating and a LEED Platinum rating, respectively. The Siemens HQ was able to achieve up to 40% energy savings through intelligent building automation and energy-efficient technologies, all while integrating a green procurement strategy throughout the development. Masdar HQ also achieved 40% energy savings compared with a typical building in Abu Dhabi [9].

Qatar also has a landmark green building – namely, is the Tornado Tower, a 200-metre-high skyscraper with energy efficient aluminium facades [10].

The above projects are just case studies of sustainable practices in the Middle East which demonstrate the increased levels of sustainability awareness in the region. It is evident that countries with political and economic stability are the ones that have developed and thoroughly implemented green building codes. Implementing sustainability in the built environment is an ongoing process with continuous and consistent efforts from all stakeholders, from governmental bodies to private developers and design firms.

Corporate social responsibility and sustainability

An emerging trend of medium-to-large corporations around the Middle East has been the integration of sustainability within their CSR strategy. CSR, also known as ‘corporate conscience’, refers to companies’ strategic approach towards generating a positive impact on society and the community in which they are functional. Despite CSR being fairly new to the region, corporations in the Middle East have correlated sustainability to their responsibility towards communities in addition to the already existing CSR programmes such as healthcare, education, training, employment and the funding of development projects.

In recent years, companies in the Middle East have embraced sustainable practices within their operation and management systems as part of their CSR. Strategies for green procurement, energy conservation, water conservation and stakeholder and community engagement have emerged, which is driving sustainability within organisations from a corporate governance perspective [11].

Sustainability in CSR: case studies

HSBC, a multinational banking and financial services company, has established a thorough CSR strategy with sustainability at its core. The company won the International Green Award for Best Green Employee Engagement jointly with EarthWatch and the Best Corporate Social Responsibility Financial Institution Award from the China Banking Association. HSBC’s standout initiative was community engagement when they identified community representatives, charity partners and civil society organisations, in addition to the other typical stakeholders, to strategically formulate sustainability initiatives that would benefit the local community in which they are functioning [11].

Many corporations in the Middle East have had success in implementing sustainability within their CSR strategies, and the Arabia CSR Network Awards in 2014 attested to this. For instance, in the public sector category, Emirates Transport was announced the winner for having a CSR strategy that integrates community engagement, social responsibility, occupational health and safety and eco-friendly services. Qatargas also won the award for the Large Business Category for having a strong CSR strategy that incorporates education, environment, health and safety and community development [12].

Challenges and constraints

Despite the vast amounts of opportunities in the Middle East to invest in sustainability – and by ‘invest’, not only financial implications are meant but also time, effort and planning – this region is faced with the most challenging circumstances. From natural constraints to man-made problems, Middle Eastern countries have struggled to find the resources to understand and implement sustainability.

A major natural problem in the Middle East is the scarcity of water. The region only has 1% of the world’s available fresh water, with an overall hot and dry climate. When faced with such difficult natural conditions, it is clear that steep population growth, poverty and the consequent degradation of natural ecosystems do not help in steering governments’ priorities towards a ‘greener’ portfolio.

The region is also faced with different kinds of challenges when it comes to achieving significant sustainability objectives.

Another challenge would certainly be lack of awareness. Fortunately the region is blessed with high levels of education, with a large proportion of regional populations pursuing secondary and higher education.

For instance, the UN Development Programme has categorised countries according to their Human Development Index (HDI). The HDI is an indication of education, lifestyle standard, quality of life, literacy, life expectancy.
and overall welfare. The Human Development Report released in 2014 stated that only four countries in the Middle East are of low HDI – Egypt, Palestine, Syria and Yemen – while others are of high and very high HDI. Unfortunately however, human development and natural wealth are not necessarily correlated with high interest and awareness levels in sustainability. Jordan and Lebanon, for example, have high HDIs but their primary focus is tourism, which mostly contributes to their GDPs – and this often negatively impacts sustainable development [13].

From another perspective, the Middle East region has long suffered from political instability and subsequent financial burdens to resolve and as such people seem to lean towards the opinion that they would rather die as the result of pollution than be killed during a war, which is a paradigm faced by some governments in the region when implementing sustainable development.

Another challenge that countries with very high HDI such as Saudi Arabia, the UAE and Qatar are faced with, is trying to impact overconsumption patterns. Even though these countries have their own green building rating systems, and awareness levels seem to be higher than in other countries, they are notorious for their overconsumption patterns.

For instance, The Kingdom of Saudi Arabia (KSA) and the UAE’s water consumption have reached 265 [14] and 550 litres per capita per day [15] respectively, which significantly exceeds the world’s average. This is particularly problematic because these countries consume more water than people living in countries that are rich in surface water and have aquifers which can be replenished.

Lastly, whilst there have been notable successes in the region with the implementation of green building codes and rating systems, there exists a large challenge in dealing with the existing building stock that was constructed before these codes came into force.

Retrofitting existing buildings to be more energy and water efficient has proven to be a financially lucrative investment but significantly reduces operating costs within short payback periods. Despite this, there exist barriers to the widespread implementation of retrofit programmes, most notably availability of financing and awareness amongst building owners. Significant strides are being taken in this field in Dubai for example with the establishment of a comprehensive framework by the Dubai Supreme Council of Energy called ‘Efficiency’, to encourage energy-efficient building retrofitting. The main aim of this agency is to tackle increasing energy demands in the city and decrease them by 30% by 2030 [16].

The widespread implementation of retrofitting existing buildings is crucial for the region to achieve a path of sustainable development and it is hoped that more initiatives can lead to further programmes of this nature throughout the region.

**Conclusion**

Middle Eastern countries have proven their resilience towards all kinds of challenges, both natural and man-made, and sustainability in the built environment industry has shown just that. While the concept is still fresh and new in some countries, Arab countries have shown tremendous progress, from governmental efforts through to private developments. This however does not change the fact that much more needs to be done. The region still has a long way to go when it comes to streamlining sustainability within development operations and raising awareness levels amongst the public. In fact, a hindrance to this programme is that each country is developing its own rating system, even though countries in this region could be grouped into one or two categories.

Taking into consideration that areas in the same country have different processes and regulations for building permits, a unified green building code would not be very practical. A step forward would be having a harmonious approach towards the reformation of green building codes in the Middle East to have consistent baselines for energy, water and environmental impact. Likewise increasing awareness levels and reducing overconsumption patterns is critical if the region is to truly move onto a path of sustainable development.

All in all, the Middle East region possesses promising grounds for embedding sustainability in the process of urban development. It is a long way until we are able to change behaviour but we are definitely on track.

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