

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/324866070>

Inside Sustainability Building Rating Systems in GCC Countries

Article · May 2018

CITATIONS

0

READS

86

1 author:



Hind Abdel Moneim Khogali

Dar Al Uloom University

11 PUBLICATIONS 5 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:

Project

Vision 2040 for Greater Khartoum Sustainable City [View project](#)

Project

Development Of Heritage Places Under UNESCO Guideline [View project](#)

Inside Sustainability Building Rating Systems in GCC Countries

*By Hind Abdel Moneim
Khogali*





Over the last decade, Gulf Coast countries have developed and adopted some notable green and sustainable performance systems and codes. The following outlines the development, implementation and subsequent benefits of three notable green building systems in Qatar, UAE and Saudi Arabia.

Qatar's GSAS Methodology

Started in 2007, the Global Sustainability Assessment System (GSAS) is the first of its kind, performance-based sustainability rating system in the Middle East/North Africa region.



GSAS was developed in 2009 by Gulf Organization for Research and Development (GORD), in collaboration with T.C. Chan Centre at the University of Pennsylvania, Philadelphia, Pennsylvania, USA with key contributions from several public sector and private sector organizations from Qatar as well as from other GCC member countries.

The assessment system aims to create a sustainable urban environment by improving environmental, economic and social benefits while preserving cultural identity.

- Environmental benefits include the enhancement and conservation of flora/fauna, biodiversity and ecosystems; conservation and restoration of natural and non-renewable resources; improvement of air, land and water quality; increase of energy efficiency while reducing greenhouse gas emissions; and reduction of waste production.
- Economic benefits include the reduction in operating and maintenance costs; creation of new opportunities and markets for green products and services; and improvement in occupant productivity, faster occupancy rates and lower turnover rates.
- Social benefits include enhancement of human comfort and health; reduction in strain on local infrastructure; improvement of life quality.
- Preservation of cultural identity.

The criteria for GSAS are divided into eight categories. Each category is weighted based on impact to environmental, economic and social stress mitigation. At present, there are thousands of buildings which are designed in accordance with the GSAS system.



**Table 1 GSAS main categories,
the total weight for each category and the score system.**

The main categories	GSAS total weight:	Cumulative Score (X)	GSAS Star Rating (★)
Urban community	0.24	$0.00 \leq X \leq 0.50$	★
Site	0.27	$0.50 < X \leq 1.00$	★★
Energy	0.72	$1.00 < X \leq 1.50$	★★★
Water	0.48	$1.50 < X \leq 2.00$	★★★★
Material	0.24	$2.00 < X \leq 2.50$	★★★★★
Indoor Environmental Quality	0.42	$2.50 < X \leq 3.00$	★★★★★★
Culture and economic value	0.39		
Management and operation	0.24		

Source: Alhorr (2009)

In Qatar, GSAS allows complete flexibility in future expansions and modifications, as well as for the seamless integration between specific requirements and sustainable goals. The system takes advantage of the best features of the rating systems available worldwide with a focus on the needs and impacts on Qatar and the surrounding regions. The GSAS rating system is applicable to all building types and projects.

Alhorr (2014) presented a workshop about the deployment of GSAS in GCC construction; industry challenges and opportunities to apply GSAS regionally. He stated that GSAS started by studying 40 global rating systems and focused on the basic study of six systems, which helped in developing their own local system.

UAE's Sustainable Code

ESTIDAMA, which is the Arabic term for sustainability, was established in 2008 by The Abu Dhabi Urban Planning Council (UPC). ESTIDAMA V1 was introduced in 2010. The goal of ESTIDAMA is to preserve and enrich Abu Dhabi's physical and

cultural identity, while creating an always improving quality of life for its residents focusing on the rapidly changing built environment.

The code is recognized internationally for large-scale sustainable urban planning and rapid growth. ESTIDAMA is the intellectual legacy of the late Sheikh Zayed bin Sultan Al Nahyan and a manifestation of visionary governance, promoting thoughtful and responsible development while creating a balanced society on four equal pillars of sustainability: environmental, economic, social, and cultural.

ESTIDAMA has the Pearl Rating system that is, like GSAS, is a point-based system, awarding project points for different credits that are grouped under a number of general categories. Points are added up to a final rating which ranges from one pearl to five pearls system. The pearl process passes through four stages: pearl design, pearl construction and the pearls operational system.

All new projects must achieve a minimum 1 Pearl rating to receive approval from the planning and permitting authorities. Government funded buildings must achieve a minimum 2 pearl rating.

Table 2 ESTIDAMA main categories and the total points of each main category

ESTIDAMA	Points	Points range	certificate
Integrated Development Process	13	All mandatory credits	1 Pearl
Natural Systems	13	All mandatory credits + 60 credit points	2 Pearl
Livable Communities	37	All mandatory credits + 85 credit points	3 Pearl
Precious Water	43	All mandatory credits + 115 credit points	4 Pearl
Resourceful Energy	44	All mandatory credits + 140 credit points	5 Pearl
Stewarding Materials	28		
Innovating Practice	3		
Total	177		

Source: Abu Dhabi Urban Planning Council (2010)

ESTIDAMA is also part of Abu Dhabi's 20-year plan, known as Plan Abu Dhabi 2030, a plan that encourages sustainable growth, protection of the natural environment of the sensitive coastal and desert ecologies (Council, 2010).

Saudi Arabia's Green Building Code

The Saudi Green Building Forum is a non-profit-organization established in 2010 supported by the public and private sector, Riyadh, Kingdom of Saudi Arabia.

The Forum's mission is to:

1. Aid the development of regulations and implementation of the Saudi Green Building rating system based on LEED® by US Green Building Council
2. Promote the comprehensive collection of standards and specifications for Green Building such as IgCC® by International Code Council in Saudi Arabia and across the Arab region
3. Strengthen relations among industry stakeholders from public to private
4. Deliver information, analysis and insights green projects through high-quality workshops from students to professionals
5. Promote Green Building concepts and identify positive policies and implementation relevant to Saudi and the Arab world that preserves culture heritage and expand urban development while incorporating new technological advancements
6. Assure Project Management Office (PMO) and Building Information Modeling (BIM) technologies based on Green Building guidance

The council is funded by an interest group of professionals and academics in the fields of engineering construction and environmental sciences and accredited by the World Green Building Council exclusively in Saudi Arabia.

Among its other activities, the group plans to introduce saaf® Green Building, a global trademark, third-body labeling system for people,

products and projects that is friendly to human health, safety and the environment.

On the other hand, Earlier this year, the SGBF became the newest member of USGBC's LEED International Roundtable. According to Faisal Alfadl, Secretary General of the King Saud Foundation and founder of SGBF, "GBF intends to utilize this partnership with the trusted saaf label as a bridge to build professional relations and leverage community connections."

Dubai Green Building Standards (Emirates gbc)

Dubai green building system is established in 2006 by United Arab Emirates Green Building Council (Emiratesgbc) they work with LEED green building standards as basic categories in sustainable site, indoor environmental control, energy efficiency, water efficiency,

building material. They offer training programme in energy efficiency and LEED courses. In addition to that, they are working with Dubai government in Dubai smart city, Dubai happy city and Dubai efficient city programme.

- While each rating system is built on a similar framework (e.g., a focus on the four pillars of sustainability: environmental, economic, social, and cultural) what really distinguishes the ratings systems below from each other?
- Comparison analysis and discussions were done on different sustainable assessment methods at GCC. They were found to have similarities and differences between their main categories. The similarities are sustainable site, indoor environmental quality, energy, water and materials. The differences are the additional categories that each country added to suit their local environment, social and economic aspects; and also, to solve their local problems like waste, pollution, health well-being, ecological features, cultural values, innovation, regional priority, environmental design process, transportation, and site management.
- Does the ASTM/ITA/ICC program fit into the conversation regarding green rating systems?.
- In my opinion ASTM/ITA/ICC program meet with the GCC building assessment methods in the main building sustainable category focus in sustainable site, indoor environmental control, energy, water and material. On the other hand, ICC introduced more specified programs
- How do each of these rating systems relate to international codes and/or the development of a unified GBC code?
- All these rating systems are working under the Global GBC umbrella, and should apply the main sustainable building standards not less than sustainable site, indoor environment, energy, water and materials, and work with ICC standards.
- Should we reference Dubai's green building system as well?
- Dubai green building system is established in 2006 by United Arab Emirates Green Building Council (Emiratesgbc) they work

with LEED green building standards as basic categories in sustainable site, indoor environmental control, energy efficiency, water efficiency, building material. They offer training programme in energy efficiency and LEED courses. In addition to that they are working with Dubai government in Dubai smart city, Dubai happy city and Dubai efficient city programme.

Author Bio

Hind Abdel Moneim Khogali is a professional environmental architectural engineer, has 22 years' experience, with consultant companies and teaching in universities as lecturer.

- PhD student with University of Khartoum, faculty of architecture, ongoing research in sustainable Eco –Buildings assessment methods since 2013.
- MSc in Environmental studies, Khartoum university since 2005.
- BSc in architecture engineering from Ain Shams University since 1994
- supervise more than 100 projects in Sudan and has a wild experience in design projects worked with Dar consult since 1994 to 2002
- Working at the moment with Dar Al Uloom University since 2010 to 2017 as a lecturer

- membership with RIBA, USGBC, SEC and SGBF, SGBC, Sudanese Engineering Council.
- working in NAAB committee and NCAAA committee in Dar Al Uloom University.
- Dependent reviewer and editorial board for sustainable development journal (SDJ) in Canadian research center. In addition reviewer and editorial board with International journal of Global sustainability (IJGS) in USA.
- Published 5 scientific researches and 4 under publishing.
Hindabdelmoneimresearchgate.com, hind abdel moneim academic edu
- published one book, one book under publishing.



ahind@dau.edu.sa
hind_50abde@yahoo.com