

Greening the Gulf

In Dubai the scale of building construction is staggering. But progress should not be at the expense of sustainability. Thom Bohlen of the Middle East Centre for Sustainable Development talks about how research can help promote green development.



Thom Bohlen graduated in architecture from the University of Illinois, USA, and began his career during the first energy crisis in the 1970s. Although the term 'sustainability' had not yet been coined at that time, Bohlen was already practising organic architecture through the use of active and passive solar design, indigenous materials, climate-driven building orientation and techniques that make effective use of daylight. These practices are now included in the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, a certification programme developed by the US Green Building Council to assess the environmental sustainability of building designs. Bohlen has been involved in more than 600 projects in the US and the Middle East. He is currently chief technical officer at the Middle East Centre for Sustainable Development (MECSD), based in Dubai.

The Gulf States are notorious for luxurious lifestyles and cheap petrol, and seem unlikely to be proponents of 'sustainability'. Is this a fair view?

The per-capita ecological footprint of the United Arab Emirates (UAE) is 9.5 hectares, nearly four times the global average. With its high levels of demand for water, fossil fuels and building materials, Dubai is indeed one of the world's major consumers of resources. But you will be pleasantly surprised about the number of green buildings that are under construction here. In October 2007, Sheikh Mohammed bin Rashid Al Maktoum, Prime Minister of the UAE and Ruler of Dubai, issued a resolution stating that all owners of residential and commercial buildings and properties in the emirate of Dubai must comply with internationally recognized environmentally friendly building standards.

This 'green decree' has enormous implications when you think of the amount of high-rise construction going on here. About 15% of the world's cranes are currently located in Dubai, although the global economic recession has put most iconic projects and about a quarter of all other ongoing development projects on hold. Not all contractors and developers enthusiastically embraced the decree. Some buildings had already been fully designed, and plans had to be revised in order to comply with the new green rating system. When things happen here, they happen fast.

What triggered this 'green decree'?

Sheikh Mohammed has a keen interest in dealing with the climate change crisis. But also, I think that the Sheikh has seen the writing on the proverbial wall. At some point in the not-too-distant future, Dubai's oil reserves will be depleted, and the city will need new economic engines. Sustainability is another way to make Dubai a unique and modern city, one that is in tune with the times.

We like to think that the decree was somewhat influenced by the development of the headquarters for Pacific Control Systems, a global leader in automation solutions. This office building, which opened in the fall of 2007, was the first green building in the UAE to receive a platinum rating, and at the time was one of only 16 buildings in the world to earn this top rating. It drew the attention of the Sheikh and members of his government, some of whom attended the grand opening ceremony.

The Middle East Centre for Sustainable Development (MECSD) and Pacific Controls are both currently headquartered in this unique crescent-shaped building. Onsite we have installed a solar thermal cooling system to provide air conditioning. Solar photovoltaic (PV) panels on the roof generate 50 kW of power for all of the office lighting. We also have an onsite sewage treatment plant, and the 'grey' water it produces is used for landscape irrigation and for washing vehicles. The platinum ranking is also based on the use of regionally sourced building materials, and materials with a high percentage of recycled content. Plus we have 'green label' carpets and 'green seal' paints, and we even use eco-friendly cleaning products. But the best thing about this building, in my opinion, is the use of natural lighting.

What is the scope of the work of centre?

Thanks to the 'green decree', the centre has grown into one of the largest independent sustainable consultancies in the world. Our 26 accredited professionals for the LEED certification programme guide our clients through the full process of sustainable building and certification. These clients include multinationals, commercial developers, national and local governments and utility firms.

We are currently involved with 180 new building projects here in Dubai, which cover an area of about 667 soccer fields. But we also go into existing buildings and implement energy conservation measures, which can be as simple as adjusting air conditioning settings or switching to energy-efficient lightbulbs.

One massive leap forward in creating a sustainable style of living has been the automated systems that Pacific Controls design and install. These systems measure, monitor and manage energy consumption in real time. Such a system at home can connect all your appliances and building systems and allow interoperability. For instance, you can turn on your air conditioning before you leave work so that you don't need to keep it running all day, but can still enjoy a cool house when you get home – not an indulgent luxury when outside temperatures are up to 44 degrees centigrade.

What challenges do you encounter in your work and how could research help address them?

There is one way research could help that is very practical. For the green development occurring here in the emirate of


Dubai, we need economic research into how to improve the market situation regarding the availability of green building equipment and products. This market is not yet competitive, and we are encountering problems with obtaining green products that are much more readily available in the US and Europe, such as energy efficient heating, ventilation and air conditioning (HVAC) equipment. We educate local suppliers, and even distribute lists of green materials suppliers to our clients. But more insight is needed into what economic barriers need to be overcome in order to develop a proper and prosperous green market.

What else is high on your list of priorities?

Sustainability is becoming a necessary way of life on the planet. But to my knowledge very few studies are being conducted into what the social repercussions are and how living sustainably will affect people's lives. One approach would be to study how people use and interact with sustainable buildings. Human behaviour is unpredictable, and as an architect I'm often surprised by how people actually use the facilities I design. Knowledge gained in a study like that would help provide valuable information to enable us to design even better sustainable buildings in the future.

But there's more to it. Looking at the pace of sustainable development here in Dubai – illustrated also by the zero carbon footprint city (Masdar) that is currently being built from scratch just outside Abu Dhabi – you realize that there will be many transitions for our society in the coming years.

This has been a phenomenal experience for me, and I feel privileged to be part of this grand transition. These sustainable community projects provide many exciting opportunities not only for technical experiments, but also for sociological research. How will people experience living in a utopian green city? How will it affect their quality of life, their relationships, and the next generation that grows up there? I don't see much written on this subject, but with the cloud of climate change hanging over us, our children and grandchildren, I think these are very important and interesting social questions that need to be tackled. ■

 A longer version of this interview can be found at www.thebrokeronline.eu