

## Summary

Ecosystem degradation creates a new trend in the context of the global ecological crisis. This trend involves the need to shift urban facilities to sustainable development standards, which in turn is linked to the necessity to modernize the urban environment in the view of comfort, economy, and ecological compatibility.

The planning, design and construction of sustainable developments play a natural catalytic role for change towards improvement of the environmental quality. This paper suggests a number of sustainable development planning, design and construction interventions, which aim to influence the behaviour of the residents to adopt a sustainable lifestyle. The adoption of sustainable practice was infused through all aspects of the planning and development of Al Marai, and, importantly, they were able to positively influence the lifestyles of those who live, work and visit the development. As per the limited scope of this case study and the late stage involvement of consulting, an integration of sustainable lifestyle facilities were limited and focused on four areas, namely: site planning, infrastructure, construction, and sustainable lifestyle practice.

## Context

Hills Properties, a real estate development company, had Al Marai development, a large apartment community development. Due to the ineffective and outdated existing planning regulations, the project had to work with tight planning options that did not provide enough public open spaces for sustainable lifestyle facilities. This resulted in the development failing to attract buyers. As a sustainable

consultant, the client asked for the author's intervention, to help to recover the development. When the consultant had joined, both planning and construction of two phases were completed. In the summer months there is a high temperature of up to 30 to 40°C in the city, while in the winter months temperatures reach freezing. In both seasons people use cooling and heating systems with fossil fuel power sources, which is costly. People tend to stay indoors most of the time for this reason. Also, the company faces challenges from its competitors, therefore needed to create a competitive advantage, which they felt they did not have at the time of appointment.

## Aims

- To create outdoor, sustainable, lifestyle facilities and encourage usage by residents
- To reduce energy bills by creating modern, sustainable lifestyle facilities within the development's open areas and on the rooftops
- Reducing overall fossil fuels usage in the development, hence reducing the overall carbon footprint of the development
- Rainwater harvesting and recycling the grey water from the development, which will be used for irrigation, recreation and toilet flushers
- Creating a desirable community to live in, which will create a competitive advantage and increase the project's financial viability and overall success

## The Project

In this main section the paper explores four areas which were used as a change agent, namely: site planning, infrastructure, construction, and sustainable lifestyle practice.

The sustainable lifestyle elements' planning and design is supposed to be made at the earliest stages of the project planning and embedded into all parties of the development; rather than doing interventions afterwards. Pre-planning has a vital influence in setting parameters within which sustainable lifestyle development could follow from the outset. Application of sustainable practice in site planning is very important for aspects such as coordinated land-use planning, defining and allocating sustainable character areas and the efficient use of space. The consultant's intervention came after initial phases of the development were completed; however, it was possible to insert sustainable lifestyle facilities into target areas of the completed phases, and to do necessary alterations on the remaining phases. The scope of planning and design alterations included: the grouping of related activities for the convenience of users, the siting of key facilities with regard to where people live, the creation of a development layout that allows easy and pleasant pedestrian access (as an alternative to private transport), and the siting of buildings to encourage natural ventilation and cooling.

Infrastructure including utilities and services, were planned to avoid wastage and inefficiency, and the large size of the development enabled economies of scale and management, and the use of common and coordinated systems. Comprehensive planning also meant that services and utilities could

be planned for the fully developed scheme from the outset; avoiding inefficiencies and inflexibility that may become an obstacle to future upgrading of the facilities. However, the intervention concentrated on features associated with sustainable infrastructure such as sustainable drainage, rainwater harvesting, storage, and the use of treated wastewater for landscape irrigation, toilet flushers and to maintain water levels of water features, created for micro environmental cooling and recreation. These were all part of the overall sustainable development planning process that the consultant's intervention was able to achieve.

One of the ways in which sustainable lifestyle was enhanced in Al Marai was sustainable construction methods, such as using insulated precast concrete elements. These are recyclable materials that reduce waste at different stages, and importantly, enhance the quality of construction. These off site readymade concrete elements allowed sustainable lifestyle alterations in the completed buildings of the development to be made swiftly, without wastage, environmental damage and disruptions to residents and wider public, during the alteration and construction. They also facilitated quick erection of the remaining phases, which again, shortened the project lifecycle for the benefit of all stakeholders.

Closely associated with the purpose of the sustainable site planning approach is to alter the lifestyle behaviour of the residents, which represents in many ways the ultimate demonstration of the effectiveness of the planning and development process. As an example, the integrated sustainable lifestyle facilities that were implemented include an



## Creating a Sustainable Lifestyle

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natural environment was also kept as it was as much as possible, and for example those areas where trees were cut, ten other trees were planted in the courtyards, on the streets, around buildings as a natural fence and on the rooftops. Rooftop gardens, courtyards and mini parks were purposely designed and built for personal meeting and community interaction, as well as active residents groups' activities, all to encourage social cohesion, wellbeing and a sense of community belonging.

### Personal Impact

The consultant had provided the needed leadership and injected an innovative idea that transformed the development from a failed one to a successful and sought-after development.

### Results

The company sold all apartments quickly and with high profit. While residents enjoyed great additional value in the form of rooftop gardens that provide sports facilities, family seating areas, and barbeque areas. Also, other facilities created on the little spaces available include: cycling routes, water features, mini parks, table tennis, and tennis and basketball courts.

These facilities made the project unique in the market and increased its sales. There is a large decrease in electricity bills due to the fact that residents are doing outdoor activities and enjoying sustainability lifestyle facilities, rather than sitting at home and consuming higher volumes of electricity.

### Results

Usage of the rooftops as community open spaces proved successful to the company and the home buyers alike