Xeritown responsive urban planning strategy, Dubai, UAE

Project description by author

Xeritown provides a sustainable development in one of the fastest growing cities of the world: Dubai. It is located in Dubai, a new extension of the city towards the inland desert. Here most projects develop considering the site as a tabula rasa on which to impose an artificial urban landscape. Xeritown, instead, takes the desert and local climate as a context within which the urban form should emerge by working with the natural environment instead of against it.

In the design, the built-up area has been compressed to occupy only 50% of the site. This done in immediate reaction to the sun's conditions to achieve a compact shaded fabric with strong reference to the traditional context: its structure integrates the desert dunes with small squares, typical of Arabic towns. This urban tissue is divided in strips or islands that are oriented so as to gain the prevailing winds crossing the site. The cool breeze from the sea is channeled between the islands and through the longitudinal cuts in the urban fabric, while the hot wind from the desert is deflected above the development. Natural ventilation is enhanced by a rugged skyline breaking up air flows on the scale of both low rises and towers. Similar dynamics determine the formations of the dunes in the desert; thus, the development appears as dunescapes where the urban islands could be interpreted as a consolidation of the desert dunes. The resulting landscape area is one of the design's strongest assets.

The 10% "attraction area" demanded by the Dubailand master plan has been allocated to it. The landscape design draws on the existing potentially humid spots that are preserved thanks to a careful positioning of the islands. It is conceived as a series of humid zones in and out setting and it profits from gray water, an inevitable byproduct of local human settlement. So the design not only builds on the present biodiversity of plants and animals, but enhances it, providing attractive designated areas.

A focal part of the design is the edge between the urban fabric and the landscape. This is the moment in which architecture, infrastructure and landscape come together, coinciding with an intensification of human activity. Here people can walk under a shaded arcade looking at shops, or stroll along a promenade observing the landscape. A shading device is located here composed by photovoltaic panels which provide valuable energy to the site. The search for solutions that focus both on environmental principles and on creating a pleasant environment for social interaction also determine the design of the architectural typologies, all of which benefit both climatically and visually from the proximity to the landscape.

Environmental performance and compatibility

Economic gains are achieved from a reduction of loss of energy and resources, the use of renewable sources of energy and, a low-maintenance landscape. Economic performance is generated from the mixed-use development created to be flexible to future adaptations, thanks also to the design of durable, flexible and adaptable buildings. The project is economically-viable and an attractive location also for people living outside the site.

Relevance to target issues by author

Quantum change and transferability

The project promotes a sustainable lifestyle in a city that until now hasn't developed in such a way. Environmental conditions (wind, sun, humidity) are considered as generators of the urban form: landscape, architecture and infrastructure are integrated into one system that collaborate to create an integral environment. The project searches for solutions that focus both on resource-saving principles and on creating pleasant settings for social interaction. Urban design is used as an instrument to enhance the biodiversity thanks to the extra water brought to the site by human activities. Sustainable design is considered as an approach that permeates the entire design process, not as simply finding technical solutions in the final phases.

Ethical standards and social equity

The project promotes a down-to-earth lifestyle with respect for the natural environment in a city known for its "bigger/faster/bolder" mentality. A pedestrian-oriented lifestyle is encouraged in a city that is strongly car-oriented. Facilities and public space for social interaction for all ages and gender and cultures are provided.

Ecological quality and energy conservation

Strategies for reducing energy demand: minimized solar gain due to east-west orientation and façade design; natural ventilation and earth pipes; LED street lighting with dimming; gas-fed CHP system to generate electrical power on site reducing distribution losses; photovoltaic panels to generate low-voltage direct current electricity; optical fibers to light interiors during the day.

Strategies for conservation of resources: reduction of demand of potable water thanks to low-water-use appliances, gray water recycling for irrigation and water saving irrigation systems; low maintenance landscape; reuse of soil present on site; waste-recycling facilities.

Strategies to reduce carbon emissions: easy access to public transport; extensive pedestrian and cycling network.

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Contextual and aesthetic impact

The project learns sustainable strategies from local architecture and urbanism reacting to arid and hot climate, produces architectural typologies which allow the social interactions specific to local culture and climate, offers high quality solutions at all scales of the design (urban, typological, detailed) and, inscribes the environmental condition into the process of form finding.