GARDENS IN THE DESERT: A LANDSCAPE ARCHITECT IN SAUDI ARABIA

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Saudi Arabia is the size of Central Europe. By comparison, its area would reach from Copenhagen to Palermo, from Paris to Budapest. In the middle of this huge desert area lies Riyadh, at the crossing point of the most important trade routes. Thanks to the abundance of water in the dry valley, the Wadi Hanifah, an oasis could develop here.

Desert and oasis - these two terms belong together. The one cannot be imagined without the other. The Semitic word Arab describes the barren desert. An Arab is therefore a person who does not live in a city, but roams the desert. The desert is a habitat for humans only where there are oases within sufficient distances. It is of strategic importance for survival in the desert to protect and extend the water sources. Sustainable landscape design in dry climates must consider natural resources. This applies to both a balanced water management and the application of design criteria, and especially to the selection of the right plants which should be adapted to the natural plant community as far as possible. The landscaping for the Diplomatic Quarter in Riyadh and other projects in and around Saudi Arabia's capital have established themselves as good examples of these practices.

Trees, water, and the colour green in Islam

All three great monotheistic religions originated in the Middle East and the scriptures of each of them reflect the landscape of this region. But none of these scriptures contains as many references to trees, gardens, and splashing water as does the Koran. Green was the colour of Mohammed the Prophet's warriors as more than a thousand years ago they conquered half of the world and finally built gardens representing their idea of paradise from Andalusia to India.
Oil wealth suddenly catapulted Saudi Arabia, known to the Romans as Arabia deserta, from centuries of being a Bedouin state with an archaic social structure, into the modern world. In a country where nature is considerably more sensitive than it is in Central Europe, rapid development brings with it the disadvantage of a progressive expansion of the desert. The palm tree and the colour green are a symbol of the state, and it is not surprising that trees and gardens are attributed a very different value to that which they have in Germany.

My first visit to Saudi Arabia was in 1974 and resulted in the conviction, which remains unchanged, that this country needs trees and gardens more than anything else. A series of simple principles have served to make our client increasingly sympathetic to the ideas of landscape and environment, including the idea that trees should be planted before houses were built in the Diplomatic Quarter and the fact that recycling water could mean each person provided sufficient for six trees. In the Diplomatic Quarter and the Ministry of Foreign Affairs Staff Housing, these principles have been consistently applied to the extent that now, every weekend, some 5,000 car-loads of people from the city of Riyadh come to the gardens of the Diplomatic Quarter and spend their leisure time in the extensive landscape in order to seek closer contact with nature. This is something which we never foresaw during the planning stage, but is a gratifying testimony to the success of our work.
The Islamic Garden

A digression, taken from the article, “City and leisure parks” (Richard Bodeker and Mohamed Scharabi, Garten und Landschaft, 8/1976)

Few Central Europeans and even few Arabs are aware that the roots of Western culture, not least in garden art and landscape design are essentially of Arabic origin. In the Orient the arts had time to put down deep roots. They were built on the inheritance from many cultured peoples: the Persians, Nabateans, Greeks, Romans, and Byzantines. All the customs of settled life took such root in the Orient that ineradicable traces are left behind. Among all these arts, garden design is, next to architecture, without a doubt one of the most important.

Fountains and small bodies of water are conspicuous in many Islamic park areas. Water symbolises purity in Islamic teaching, and this virtue has great importance. In addition the water stands as a connecting element between architecture and vegetation. The constant flow of the water not only provides movement, but a cool atmosphere, which is desirable in the entire Near East region. Vine leaves often shaded entire courts and small gardens. Trees were set out in pots or planted at intervals. Flower beds, ponds, and canals were narrowly bordered. Next to the paths were pleasant flowers and plants and shrubbery. To create order in the multicoloured and multiformal park, palms and other trees were regularly planted. They also formed a shaded area, which made possible a pleasant visit in the hot seasons. Visual prospects such as those in the garden park of the Alhambra were not a rarity. Balconies and terraces were built on natural or artificial hills viewing towers. From the descriptions of Islamic parks, we know the love of the Arabs for the unusual. To the traditional gardens belonged indigenous and foreign animals. These made a sort of zoo. In the ponds coloured fish were bred. Greenhouses, labyrinths, and sundials were built in the gardens. The greenhouses sometimes served as reception rooms in winter. Not only Arabic, but also European travellers described and admired the Islamic garden art. Chardin among others pictured the Chehar-Bagh and Schihil-Sutun in Isfahan. They were characterised by the complete subordination of architecture to the landscape formation. The parks were inseparable elements of the city ground plan and city life in general.
Riyadh Diplomatic Quarter

In 1977, members of the diplomatic missions in Jeddah were promised that when they moved to Riyadh six years later, they would enjoy a considerably higher quality of life than was normally the case for the capital city. Given the fact that the 900-hectare site for the proposed new Diplomatic Quarter resembled a moonscape, this promise was met with some scepticism.

Two or three Bedouin camps, with their herds of sheep, goats, and camels had ensured that, apart from a few meagre grasses, the site
was completely bare of vegetation. So one of the first measures undertaken in the new Diplomatic Quarter was to fence out animals. After the first rains it was like a miracle to see the mass of annual and perennial plants which sprang up.

The Diplomatic Quarter, which will ultimately house some 35,000 residents, is a self-contained district of Riyadh, at the centre of which embassies are grouped on a linear axis, surrounded by five residential neighbourhoods. Each of these neighbourhoods has a local park of between two and four-and-a-half hectares, and is linked to the other districts and central facilities by a system of green spaces. Around the edge of the Quarter are a total of 18 gardens in a transition zone to an area of improved desert, which forms an enclosing belt.

A number of principles of Saudi culture provided an important starting point for the development of the design philosophy.

These can be summarised as follows:

- Small scale size, to ameliorate the desert climate;
- Shade; unity with the desert (therefore location of the gardens on the edge of the development);
- Separation between protected open spaces and the open desert using walls;
- No Western furniture (sitting is on carpets on the ground);
- Consideration of social behaviour;
- Provision of contrast to the interminable sun;
- Use after sunset;
- No metal play equipment (overheating);
- Use of vegetation with low water requirements;
- Response both to the formality of Islamic garden design and to the freedom of the desert landscape; and
- The use of naturally occurring rock as a design feature.
The main types of green and open space developed were:

- Roadside planting of date palms on main streets and smaller trees on residential roads;
- Residential courts in the form of cul-de-sacs for parking but also with play areas, pergolas, and tree planting;
- Green links and formal parks and gardens based on three themes: the Islamic garden, the oasis, and the play area for all age groups;
- Non-formal parks and gardens, based on free forms and also containing play areas;
- The improved desert, with its use of native species, forming a buffer around the Diplomatic Quarter of between 80 and 100 metres wide from the motorways as well as from the Wadi Hanifah and contrasting with the designed parks and gardens.

The landscaping of the Diplomatic Quarter relates to the built-up part to its surroundings and is of two kinds: intensive and extensive.

The intensive landscape is irrigated and heavily planted. In it, a green network of paths and walkways relates public gardens, ranging from parks to small play areas, to each other. The intensive gardens provide a range of social and recreational opportunities, which are used in different ways by the various communities of the Diplomatic Quarter on Fridays and holidays.
The larger, extensive part is on the periphery of the built area and serves as a transition zone between it and the desert. There is little or no irrigation here; earth berms, artificial wadis, and basins collect run-off from roads and from drainage of the intensely irrigated parts, and direct water to green fingers and tiny gardens which soften the rugged landscape. Rainfall can be intense, up to 30 millimetres a day, an average yearly precipitation of only 115 millimetres.

The whole area is enclosed since, as a result of government grants and the mechanical digging of wells, overgrazing had killed all plants within a radius of 100 kilometres around Riyadh. Some 350 seed species were collected from the desolated area and have been raised in the project’s nurseries to provide an authentic local flora. 250 animal and bird species have also been saved. A radically new, yet totally genuine environment was created for a self-sustaining ecological system in the extensive landscape areas.

The guiding principles which should be followed when planning in Saudi Arabia can be summarised:

1. In central Saudi Arabia, a real and not a man-made desert, sustainable with natural trees and vegetation, can only exist in wadis (dry riverbeds), which have good, deep soil and a very large rainwater catchment area.
2. To make desert cities habitable, trees, gardens, and parks are essential. In fast-growing cities like Riyadh, in the middle of the desert where urban infrastructure can be overwhelming, the green factor is even more important.

3. The implementation of this greening needs the active participation of the landscape architect from the very beginning of each urban planning process; and sometimes he should be the leading figure.

4. The success and sustainability of Riyadh’s Diplomatic Quarter landscaping was, furthermore, only possible under the following conditions:

A client with a deep understanding of the need to apply landscape design to the 900-hectare site that was a barren moonscape, without any vegetation or soil. This client, H.E. Dr. Mohammed al Shaikh (now a Minister of State), made the implementation of parks, trees, and gardens possible before the urban development started.

The lack of water—the limiting factor of all vegetation in the desert—made the treatment of wastewater for irrigation purposes a necessity. One human being produces enough wastewater to irrigate six trees.

The Diplomatic Quarter nursery, one of the first projects to be implemented, produced indigenous trees. Seeds were collected in the wadis of central Saudi Arabia.

A construction site of 900 hectares produced an enormous amount of excavation material. We did not allow any trucks to leave the site! Excavated rock was sorted into three categories for later use: rock placement, erosion control, and rock art. Other excavation material was dumped to create the ten-kilometre-long earth berm, which acts as a noise and pollution barrier between the Diplomatic Quarter and the Hejaz (Makkah) Freeway.
A careful cut-and-fill design and management created the ten-kilometre-long, 80 to 100 metre wide escarpment edge of the Wadi Hanifah. Beautiful Riyadh limestone was used to create features in the so-called, extensive landscape areas along approximately 40 kilometres of car-free pedestrian and bicycle trails.

The formal heritage of the so-called intensive landscape areas reflects the rich cultural heritage of Arab history.

Stormwater run-off from all sealed and asphalted areas in the Diplomatic Quarter is guided and channelled to planted swales and retention areas in the extensive landscape to provide irrigation for the vegetation there, just as happens in nature.

In conclusion, these principles have been formulated on the strength of over 20 years experience in Riyadh’s Diplomatic Quarter and the success of the project serves as testament to their relevance.