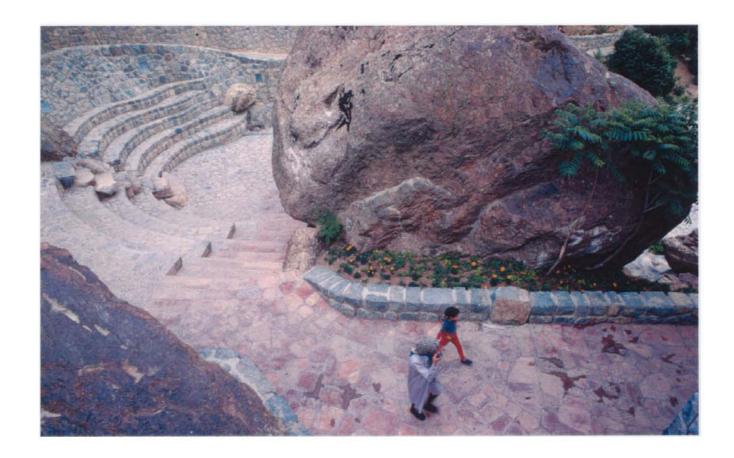


by Jolyon Leslie

## Bagh-e-Ferdowsi

Tehran, Iran



## Architect

Baft-e-Shahr Consulting Engineers: Gholam Reza Pasban Hazrat

## Client

Tehran Parks Organization

## Design 1992

# Completed 1997

## Bagh-e-Ferdowsi

Tehran, Iran

#### I. Introduction

Part of a range of measures aimed at development of an appropriate interface between the city of Tehran and its natural environs to the north, the Bagh-e-Ferdowsi park demonstrates an innovative approach to both conception and environmental design. The project, together with the adjoining Bagh-e-Sangi Jamshidieh park, which was designed by the same team, is part of a scheme aimed at creating a green interface between urban development and nature, at the base of the Alborz mountains, which now form the northern limits of the city. As well as promoting conservation and awareness of nature, the project serves as an important social focus for young people from the rapidly-developing northern suburbs, while providing them with much-needed space for recreation within the parks, and on the slopes above. Inspired use of the natural topography and features of the steep site, together with intensive planting, has resulted in a design that is in harmony with nature and its surroundings. As such, Bagh-e-Ferdowsi represents a creative re-interpretation of the traditional Persian "paradise" garden, adapted to modern needs.

#### II. Contextual Information

#### a. Historical background

While there has long been settlement in the area, which was once characterised by forests and abundant water from the Alborz mountains to the north, the town of Tehran was first walled during the Safavid era, in the mid-16<sup>th</sup> century. Briefly replacing Shiraz as the capital of the Zand dynasty in the mid-18<sup>th</sup> century, Tehran was in 1795 proclaimed the capital of the succeeding Qajar dynasty. In response to the growth of the population, the original walls were extended and 12 gates built in the early 19<sup>th</sup> century. These were subsumed by the expanding city by the early 20<sup>th</sup> century, by which time the population had grown to half a million, and most of the gardens surrounding the city had been built upon. The prosperity that accompanied the exploitation of oil from the 1950s accelerated the growth of the city, which has continued since, such that the population of the metropolitan areas alone is estimated now to be about 10 million.

Rapid growth in population resulted in huge pressure on land for building, which has resulted in the destruction of many of the public and private gardens that once graced Tehran. Over the past two decades, many of the large gardens belonging to villas in the northern suburbs were subdivided for development, and built upon. As part of a wider range of measures to promote urban development, Tehran Municipality has supported efforts to protect the natural environment of the Alborz mountains that now form the northern perimeter of the growing city.

Building upon the success of the Bagh-e-Sangi Jamshidieh park (Jamshidieh stone garden), which was created during the late 1970s on a 12-hectare orchard, a number of studies were commissioned in 1992 from the Baft-e-Shahr practice by Tehran Municipality. These studies

included an environmental design for the 4 valleys associated with the Kolak-chal heights, which adjoin the northern suburbs of Tehran, as well as a proposal for a park on the 30-hectare site that came to be known as Bagh-e-Ferdowsi.

#### b. Local architectural character

The residential areas adjacent to the parks are characterised by a dense mix of undistinguished residential development, ranging from double-storey family homes to multi-storey apartment blocks. Apart from some of older homes, upon whose gardens new development has taken place, construction is of steel frame with infill of hollow brick, with facades of marble or facing brick.

#### c. Climatic conditions

The valley in which Tehran is situated enjoys a dry highland climate, with prevailing westerly winds. While the southern edge of the city lies in a broad plain, at 1,160 metres above sea level, the northern suburbs are at some 1,700 metres, at the base of the Alborz mountains, which rise to almost 4,000 metres. A combination of elevation and topography results in significant variation in climate between the south and north of the city, where annual average rainfall is reported to be 407 mm. Winter temperatures tend to be significantly lower in the north, with snow on the heights of the Towchal ridge until spring, while the summer average is reported to be 30 degrees centigrade.

#### d. The site

The city of Tehran sprawls over an area of 600 square kilometres on the southern slope of the Alborz mountains. The 200-hectare Manzariyeh boy scout camp, as well as the Bagh-e-Ferdowsi and Bagh-e-Jamshidieh parks are situated at the base of this range, in the Manzariyeh district of the northern suburbs, which lie some 500 metres above central Tehran. Covering an area of 30 hectares, at an altitude of between 1,800 and 2,100 metres above sea level in the Darabad valley, the site of Bagh-e-Ferdowsi comprises a series of steep south-facing gulleys, eroded from the bedrock, and scattered loose rocks and boulders. Natural flora was limited to sparse coverage by indigenous mountain plants, prior to the development of the parks. There is no natural source of water on the site.

In order to assess the potential of the site at an early stage, the design team camped on the slope for a month, during which time they recorded the key natural features of the slope, through photography and drawing. The aim, from the very start, was to allow the project to emerge from the natural topography, rather than imposing a design upon the existing landscape.

## III. Programme

## a. Conditions that gave rise to the formulation of the programme

The programme arose from official acknowledgement of the needs of the growing population of Tehran for green-space, and for limits to be placed on the sprawl of the city up the slopes of the Alborz mountains to the north. Building upon concepts that had evolved during the development of the adjacent Bagh-e-Sangi Jamshidieh, the same design team were commissioned to undertake an environmental design for the Golab-dareh, Tang-e Hesarak, Jamshidieh and Darabad valleys, which extend some 6 kilometres along the base of the Alborz range on the northern edge of Tehran, and are about 2 kilometres deep.

These designs exercises were carried out in consultation with a range of different interest groups, including the Ministry of Education of the Islamic Republic, the Organisation for Natural Resources and mountaineering groups. Recommendations in the design that the Alborz mountains be declared a green-belt were subsequently approved in 1993 by a committee of the High Commission of Architecture and Urbanism, and the Organization for Natural Resources was designated to enhance this area. This move was significant in removing pressure for development on the surviving natural environment in the area of the Alborz mountains.

## b. Programme objectives

The aim of the design was to conserve and, where possible, enhance the existing natural environment within and between the 4 valleys by limiting additional development, while promoting the area as a focus for recreational for the inhabitants of the city. This was to be achieved by the creation of a green interface between the existing urban development and the hills, to provide an intermediate setting for family recreation, but also to act as an entrance to the protected natural environment in the valleys and slopes beyond, which would be the focus for walking and mountaineering. A hierarchy of distinct but related areas within this green interface was defined, as follows:

- perimeter urban space, representing the limits of the city.
- "natural-urban" parks, with appropriate family recreational facilities.
- "nature-man" spaces, with opportunities for trekking or mountaineering.
- the protected, undeveloped natural environment of the mountains.

Bagh-e-Ferdowsi represents the realisation of one of the major "natural-urban" parks, as part of the larger ongoing environmental design scheme for the southern slopes of the Alborz mountains. The park was conceived both as a place of contemplation, social interaction, recreation and entertainment, as well as a gateway to the "nature-man" spaces on the higher reaches of the mountain, including the Miadgah complex, which is planned on the summit of the ridge to the east.

## IV. Description

#### a. Project data

Bagh-e-Ferdowsi occupies some 30 hectares in the steep Darabad valley in the foothills of the Alborz mountains. The parts of the site that were in private ownership were purchased by Tehran Municipality for its transformation into a park. Apart from the intensive planting that has been introduced, the primary development on the site is a series of stone-paved paths and steps, rising up the slope of the hill, along which areas for sitting, refreshments and entertainment have been created, within the natural topography. Four cultural houses, representing the distinctive architectural and decorative styles of the Azeri, Kurdish, Turkmen and Zagros ethnic groups in Iran, have been built along the route, and provide spaces for refreshment and entertainment.

## b. Evolution of design concepts

The underlying concept of Bagh-e-Ferdowsi is to create an interface between the urban and the natural, and thereby engender an understanding among urban residents of the importance of the environment, in both physical and cultural terms. The design of the park emerged from a detailed process of analysis of the existing topography and features, which were both drawn and photographed on site by the design team, in stages, over a period of a month or more. Ideas for the enhancement of the found landscape, through the introduction of paths, steps, terraces, spaces, sculpture or planting, were worked up by means of sketches on transparent overlays over these photographs. Once finalised, these drawn overlays formed the basis for the marking out in lime of the proposed interventions on site, to ensure compatibility with the existing natural features. The original concepts were, in this way, further elaborated or adjusted prior to implementation. As-built drawings were subsequently prepared for all construction work.

The design of Bagh-e-Ferdowsi builds upon the experience gained during the development of the adjacent Bagh-e-Sangi Jamshidieh, which has become a popular focus for outdoor social life and walks for families since its inauguration 22 years ago. The later park takes some of the original ideas explored in Jamshidieh further, in creating a series of routes up the steep hillside, with views far out over the city. With the perceived needs of young people primarily in mind, the design allows for progressive exploration of the physically-challenging slopes along a number of paths, while providing them an opportunity to be alone together, as appropriate. These paths in turn lead to hiking trails into the upper valleys, or link up with paths across to the Sculpture Garden that is being developed to the east.

The design has, to a large extent, emerged from the natural topography and features of the rocky slopes from which it was created, and with which it is in harmony. Every effort was made to minimize excavation or back-filling for the various paths and terraces that cross the site, or for buildings. Many of the large boulders were, once suitably anchored, used as a focus for the diversity of incidental spaces that lie along the routes, Likewise, the location and form of the various cultural houses that lie along these routes respond to the existing

topography, that has in places been exploited to create significant open spaces, such as the two public amphitheatres.

The landscaping of these routes is designed to explore a number of themes, both cultural and natural. The starting point for the park is a paved open space dominated by an imposing statue of Ferdowsi, the great Iranian epic poet, after whom the park is named. From this space, a wide stepped pathway fills an area conceived as a "cascade passage". This path follows a small depression, along which have been created a series of spaces, both public and intimate, covered and open to the sky, shady and sunny, where visitors might sit, chat, observe, eat and drink or enjoy public entertainment. A large pyramid-shaped timber frame straddles one of the major areas of seating along this route, providing a sense of enclosure and shelter for those pausing underneath.

The pathway is bordered on both sides with a variety of indigenous and adapted trees and shrubs, chosen for their suitability to the environment, form and colour. All possible native trees and shrubs that were on the site have been saved. Shade trees, including flowering cherries (symphoricarpos albus), apples (hypericum spp) and pears (berberis spp) have been complemented by a rich mix of shrubs (rosa canina, pyracantha coccinea, eleaegnus pungens, juniperus horizontalis, cotoneaster spp, forsythia spp, spirea crenata wisteria sinesis, tecoma radicans) to create a varied environment along all of the main routes on the site. In some cases, copses of trees have been planted between the paved paths to provide both shade and swathes of colour during the changing seasons.

The unifying theme of this section of the park is the pathway, bisected along its length by a narrow and sinuous water channel, down which water drains from the traditional public fountain or *taqirkhaneh*, located below the Azeri cultural house. The significance of this space, and the water that it provides, is emphasized in the form of the sculpture of cupped hands that form a basin beneath the water-fountain, and in the distinctive red Azeri stone used in this space and the adjoining building.

On the terrace above the Azeri cultural house, the path splits, and leads either to a broad terrace to the west, with views far out across the city or, up and around a higher valley filled with flowering plants (*ligustrum lucidum*, *crataegus spp*, *lagerstroemia indica*, *lavandula angustfolia*, *rosmarimus officinalis*) to the Kurdish cultural house. The entrance to this house is via cut-stone steps, divided by a narrow water-channel, that lead up through the centre of a large outdoor amphitheatre. Again, a water-fountain provides the focus for this space. The steps, carved from stone brought from Kurdestan, give access to a central internal space, built directly against the rocky hillside, with wide terraces high above the city.

To the west, a steep flight of straight stairs leads to the ridge occupied by the Turkmen cultural house. This comprises a series of circular spaces with distinctive domed roofs, which are derived from the traditional *yurt*. The house, which is used as a restaurant, has a large central fireplace, around which performances of live music take place. The house adjoins a large public stone-paved terrace, and is used for picnics or outdoor barbecues. The hillside leading up to the Turkmen house has been planted with a mix of deciduous trees (*robinia* 

pseudacacia, prunus mahaleb) and conifers (cupresus spp, pinus elderaica, piea pungens). There are fine views up the valley to the higher slopes, accessed by trekking paths.

A separate stone path, with 750 steps, zigzags up the steep slope to the Zagros cultural house, which is situated below a rock outcrop at the summit of this section of the park. Half way up this route, a small resting place has been created around a large natural boulder, that has been imaginatively sculpted in the shape of a bear. Designed in the form of an open-sided nomadic tent over a stone masonry plinth, the Zagros house offers stunning views out over the city stretched below.

A path is under construction to a ridge to the east, the proposed site for the Miadgah complex, which will be at 2,100 metres above sea-level. The complex, which will be served by telecabins from Manzariyeh below, is conceived as a place illustrating the crossroads of Iranian culture, and will include a restaurant, tea-house, exhibition areas and workshops, terraces and a theatre. It will also serve as the culmination of a steep route that leads up from Bagh-e-Sangi Jamshidieh, through a Garden of Sculpture that is currently being developed. This route, which is roughly parallel with that of Bagh-e-Ferdowsi, passes through a series of dramatic natural rock outcrops that have been imaginatively sculpted to look like fish and lizards. This is an environment planned primarily with children in mind, aimed at developing both respect for natural features, and engendering a sense of fantasy by the transformation of the boulders into recognisable forms.

## i. Materials, technology & services

The prime material used for the landscaping in the park is rough-hewn stone masonry, which forms the paving and retaining walls and terraces. Most of this stone was collected from the site, or quarried from higher up the Towchal ridge, from where it was brought down on an existing funicular railway. Limited quantities of additional stone were brought in from both Azerbaijan and Kurdestan, for use in and around the respective cultural houses, where they provide a distinctive and recognisable visual identity. Retaining walls and terraces throughout have been constructed in undulating organic patterns, based on the sizes and shapes of stone found on site, the cutting of which was thereby minimized.

The principal structural materials used in the cultural houses is load-bearing stone masonry with floors supporting reinforced concrete floors or roofs. In the case of the Azeri and Kurdish houses, a traditional timber ceiling has been erected beneath the concrete roof in the major spaces, and outdoor spaces have characteristic timber balustrades. In the Turkmen house, the brick walls of the circular rooms are faced on the outside with reed mats, resembling the texture of the traditional yurt, while the fibre-glass roofs echo the shape of the original domes, lined inside with woven straw matting.

A cable-rail system had to be installed on the site during implementation, in order to allow for delivery of materials, apart from stone. In several cases, materials had to be delivered to the more inaccessible parts by mule. Temporary transverse roads were created in parts of the site to enable access for heavy machinery.

All of the major buildings in the park have basic services. Water, pumped from the city system, is fed by gravity for both visitors and for the drip-fed irrigation from a high-level reservoir above the site. Given the rocky nature of the site, which limits the potential for use of soakaways, all buildings are connected to a sewage system that is linked up to the city network.

Lighting represents an important aspect of the design, given the number of visitors who come to the park on spring and summer evenings. Indeed, the distinctive pattern made by the lights of Bagh-e-Ferdowsi against the slopes of the Alborz mountains is now something of a land-mark from the city below. All of the principal paths to the summit are lit by means of pole-mounted lights, with opaque covers to prevent glare when viewed from above. While effective use was also made of indirect lighting around the cultural houses and in the adjacent public spaces, several of the fittings have been stolen or removed. Additional lights have been installed by the authorities in areas where lighting levels were deemed to be inappropriately low, for reasons of "public morality".

All professionals involved in the design and implementation of Bagh-e-Ferdowsi were from Iran. While most of the labour involved in the project came from Tehran, specialist stone masons from Azerbaijan, Kurdestan and Hamadan were employed for some of the masonry work on buildings.

## V. Construction Schedule & Costs

## a. History of the project

Conceived fifteen years after the opening of the Jamshidieh park, as part of a wider environmental design for the valleys of the Kolak-chal ridge, work on Bagh-e-Ferdowsi began in 1993, and was completed in 1996. The designers of the project report the difficulties that they had in convincing the various municipal authorities of the viability of the scheme, and of the on-site method of design. While there seems to have been strong political support for the project, the attitude of some of the technical departments towards the scheme was clearly a constraint. The completed project was inaugurated by the President of the Islamic Republic of Iran and the Mayor of Tehran in 1997.

#### b. Costs

The total cost of the development of Bagh-e-Ferdowsi is put at US\$ 2.7 million, at the exchange rate prevailing in 1998. Of these costs, some 40% were for materials and 30% for labour, while landscaping cost only 8% of the total. In relative terms, the overall cost of the project was reportedly modest, given the limited interventions that were made. The project was financed by Tehran Municipality.

Maintenance costs of the park as planned were reportedly modest, given that primarily native planting that was carried out, which were sustained by drip-fed irrigation systems. Subsequent changes to some of the planting by the district 1 of Tehran Municipality, who currently maintain the landscape, are thought to have added significantly to recurrent costs of the

project, because of the need for regular re-planting of annuals, and greater use of surface sprinklers.

#### VI. Technical Assessment

#### a. Functional assessment

In the diversity of the spaces that have been created, and the routes that have been explored across the site, Bagh-e-Ferdowsi park seems to responds well to both the functional and psychological needs of visitors, who can be seen wandering along its paths, or deep in conversation or thought on one of the many benches that have been provided. A highly sensitive approach to planting has created as suitably paradise-like environment in places, close to yet distinct from the huge city nearby.

At the same time, the park provides the young of the city with the option for entertainment, either in the two open-air amphitheatres (which are sometimes used for television shows) or the four cultural houses. For others, who may wish to climb to the upper slopes of the park, it provides an opportunity for exercise in an unspoiled environment high above the pollution of the city.

#### b. Water

The use of water in the design of the park should be seen in the light of its symbolic significance in historic Persian culture. Given that early gardens in the country were created as oases, water was one of the main organising elements within the traditional garden. This has been explored through use of cascades and pools in the nearby Jamshidieh garden. With no natural source of water on the site of Bagh-e-Ferdowsi, however, water is restricted to narrow channels that drain from drinking-fountains in the major public spaces. These channels also help to drain rainwater from the paths and terraces. The location of parts of the garden in a valley required appropriate diversionary measures for heavy rains, to mitigate against flash-flooding.

#### c. Environmental response

The design of the park is exemplary in the manner in which it has been developed in harmony with its immediate natural environment. Not only does the physical development respect the natural topography of the site, but the widespread use of indigenous flora demonstrates to visitors both their usefulness and beauty. The inspired sculpture of natural features, such as boulders, into recognisable forms, creates an environment in which respect for nature can be playfully developed among the young.

#### d. Maintenance

The management of the site now rests with Tehran Municipality, who are responsible for ongoing maintenance of the park, which is heavily used for about 9 months of the year. Despite this intensive use, the principal deterioration seen during the review was a section of

cracked stone paving, which could present a hazard for walkers if not repaired. This generally good state of repair can be put down to the practical nature of the design and finishes, as well as by the degree of respect shown towards the park by its many visitors.

## e. Impact of the project on the site

While provision was made in the original environmental design for measures that would facilitate traffic and ensure adequate parking within the "urban-nature" zone, these aspects of the scheme have not been implemented to date, for lack of funds. The congestion in the main approaches to both Bagh-e-Sangi Jamshidieh and Bagh-e-Ferdowsi, however, does not seem to deter the many thousand of visitors who come here at weekends. If the site is to be further developed, it will be essential to address this issue.

## f. Viability of the project

The practical viability of the park is borne out by the huge popularity that it enjoys among the public. In a context where such public facilities are provided for free, the costs of maintenance of the park will need to continue to be funded by Tehran Municipality, unless private sponsors can be found. No information was available about the revenue earned from the lessees of the various cultural houses, but it is felt that this is insignificant when set aside the development and likely recurrent costs of the garden as a whole.

## g. Appropriateness of furnishings and decoration

The designers have made sensitive use of natural and durable materials for external furnishings throughout the park. While much of the seating for the public, such as that in the two amphitheatres, is stone masonry, simple wooden benches have been used elsewhere. There are also examples of imaginative use of decorative elements, such as the traditional arch (with a pair of doves) built over the *taqirkhaneh* or water-fountains, or the playful use of sculpted boulders in several places.

Special attention has also been paid to the furnishing of the various cultural houses, where traditional materials and crafts have been effectively used to create spaces that reflect the distinct identity and way of life of the ethnic groups that are represented. These were conceived in the original design as small cultural centres in which many different aspects of ethnic identity, including crafts, music, poetry and history could be explored. They have instead been leased out by Tehran Municipality to private entrepreneurs, who now operate them primarily as restaurants or tea-houses for visitors to the parks.

#### VII. Users

a. Description of those who use or benefit from the project.

Intended by the designers to attract primarily young people from Tehran, Bagh-e-Ferdowsi is used regularly by a wise cross-section of residents for up to eight months of the year. On a

typical spring weekend evening, groups of young people, couples and families throng along the paths, sit around the meeting places, or picnic on the slopes.

## b. Response to the project by clients, users and community

While the design for Bagh-e-Ferdowsi clearly had support in principle from the client, Tehran Municipality, there were significant problems reported with its actual realisation, due to differing perceptions among different parts of the administration. Since its completion, however, there seems to be general acknowledgement of its value, which is borne out by regular use for official functions. Moreover, a number of municipalities in Iran have sent their staff to study the parks, as the basis for their own initiatives in environmental improvement.

As well as being popular among the wider public, the park is evidently well-regarded by the professional community, who make regular use of it for private purposes. It is perhaps significant that both Bagh-e-Sangi Jamshidieh and Bagh-e-Ferdowsi have been used as models of environmental design in courses in Iran, and have attracted a number of visits by professionals from abroad.

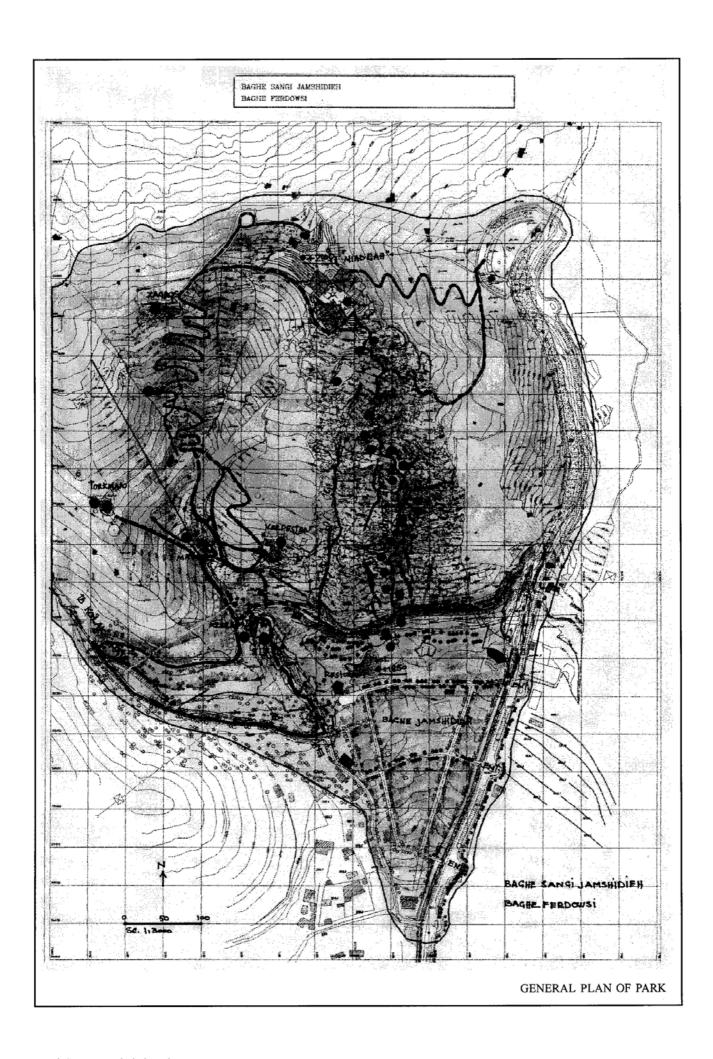
In much the same way that Bagh-e-Sangi Jamshidieh park has witnessed a huge number of visitors in the 22 years since it was opened, the public response to Bagh-e-Ferdowsi has to date been enthusiastic. Those who were interviewed during the review, many of whom were young and confessed to be regular visitors to the site, indicated their appreciation of the opportunities that it provides for social interaction, recreation and entertainment, while acknowledging the importance of its sense of peace and tranquillity.

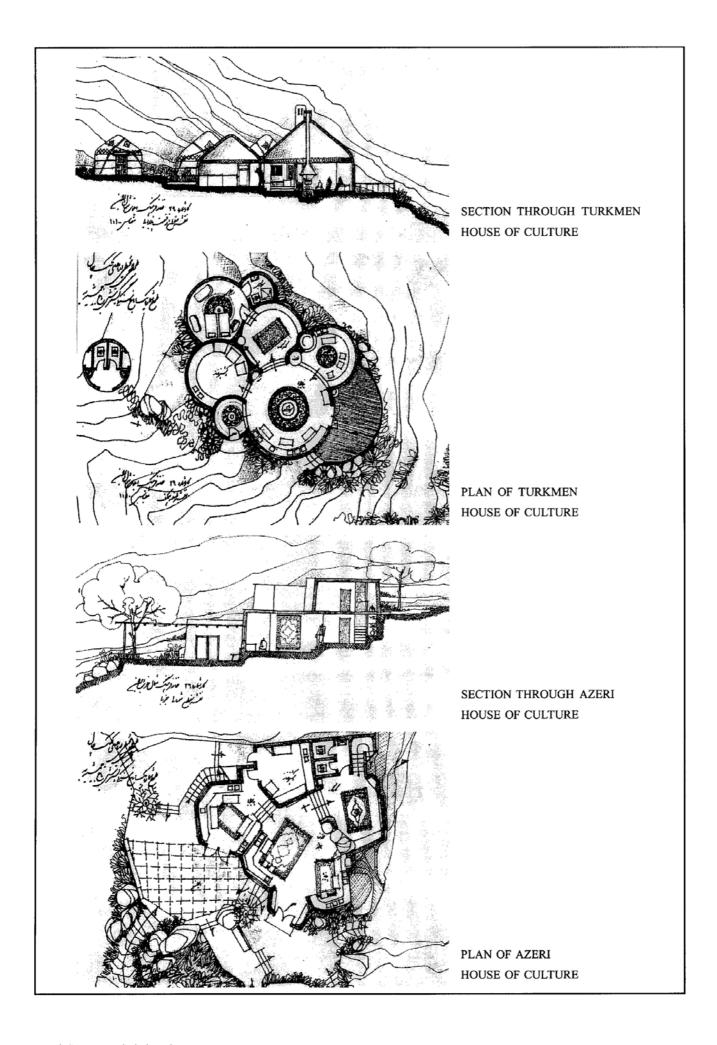
While providing an opportunity for regular recreation, the approach to the parks clearly also present a problem for the immediate neighbours, in the traffic congestion caused by visitors at weekends.

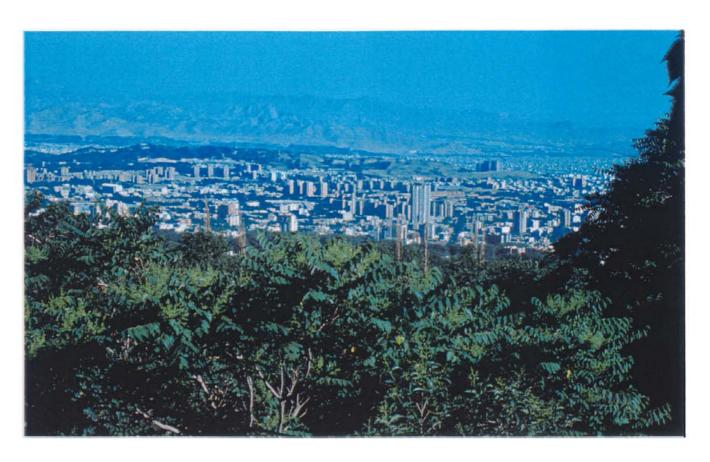
#### VIII. Persons involved

The chief designer of the park and the project director (as well as manager and photographer) was Gholam Reza Pasban Hazrat, principal of Baft-e-Shahr consulting architects and urban planners in Tehran. Landscape design was carried out by F. Farhad Abozzia, assisted by A. Ghahraman, botanist. The architects responsible for the design of the cultural houses and meeting places were F. Gharai, M. Bahmanyar and M. Naseripour. Interior design was undertaken by Mortazavi and Tavakoli. Field studies were carried out by H. Ghaffari, and graphic work was the responsibility of M.R. Saffarizadeh. Site supervision was undertaken by H. Khoda Gholi Araghi and F. M. Sohi. The electrical design was by A.A. Ghahramani, while the mechanical engineer was A. Haddad Kave. The geologist was A. Fahim, while the hydrologist was A. Ghasemi. Photography has undertaken during and after the project by K. Jebraili. Thirty of the sculptures were executed by N.H. Vaziry, with another two by S. Ekrami.

Jolyon Leslie June 2001

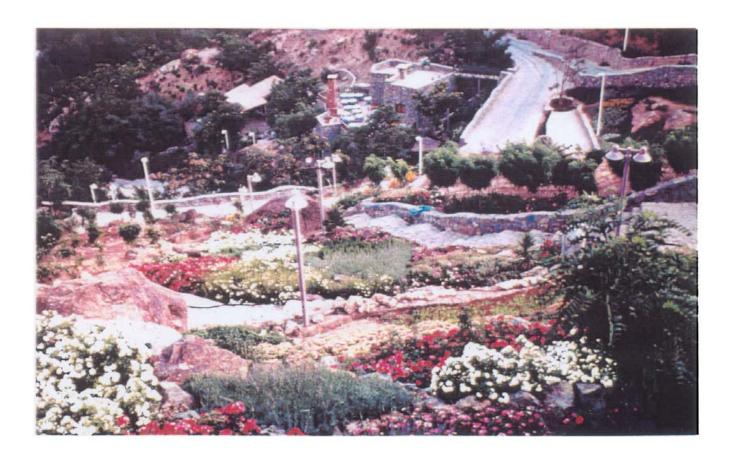




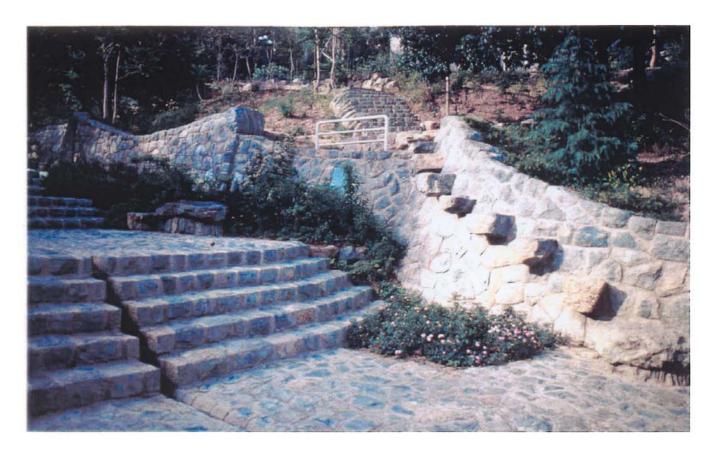


Above: View of Teheran from the park at an altitude of 1,800 to 2,100 metres above sea level.

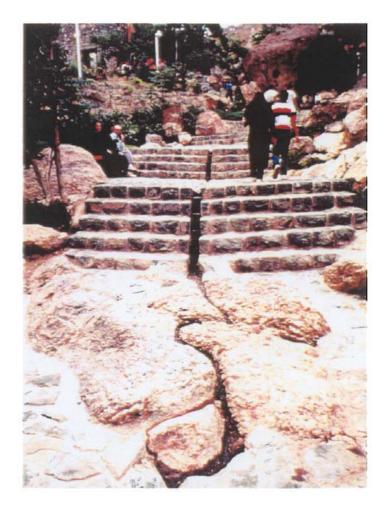
Below: Flowering plants colour the landsacpe near the Azeri House of Culture.



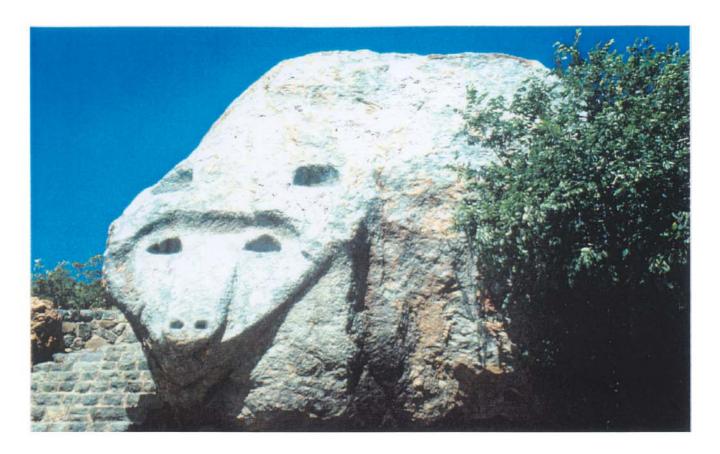
Bagh Sangi Jamshidieh, Tehran, Iran



Above: The footpaths and landfill walls were built in stone.

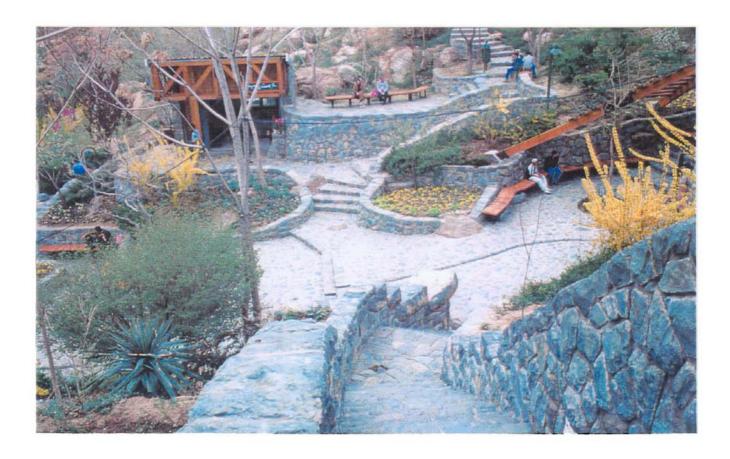


Right: Stone-paved footpaths incorporate existing rocks into their design.

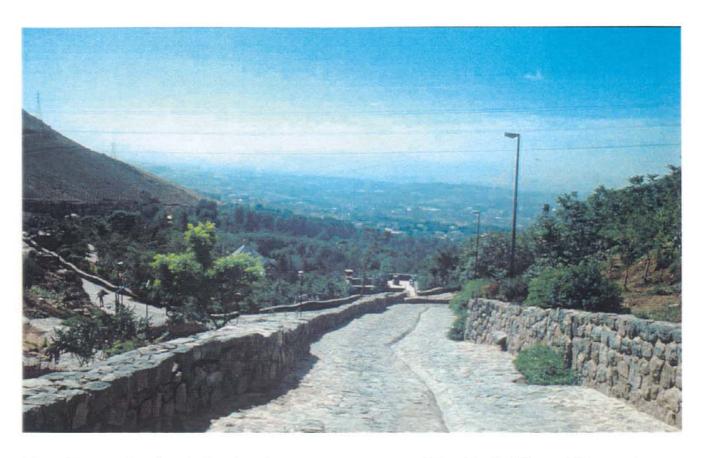


Above: Existing boulders in the park have been hand carved by a single stone sculptor over a period of 20 years.

Below: This popular recreation park is often used by youth during trecking excursions in the moutains.



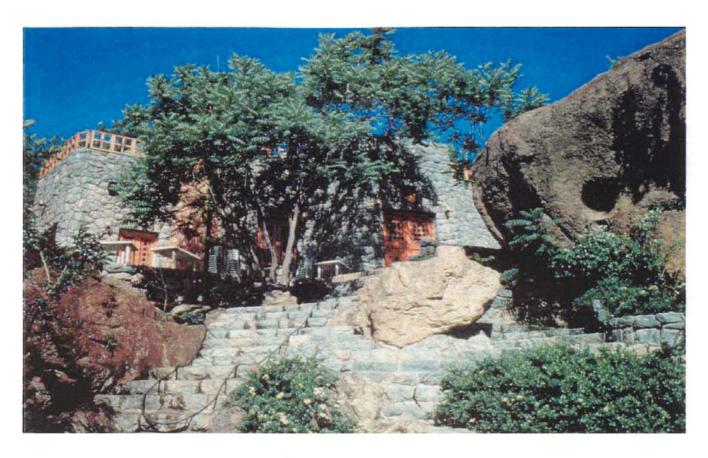
Bagh Sangi Jamshidieh, Tehran, Iran



Above: Stone-paved roadway leading down to the Azeri House of Culture.

Below: The Azeri House of Culture see from below, with the Turkmen House up left.



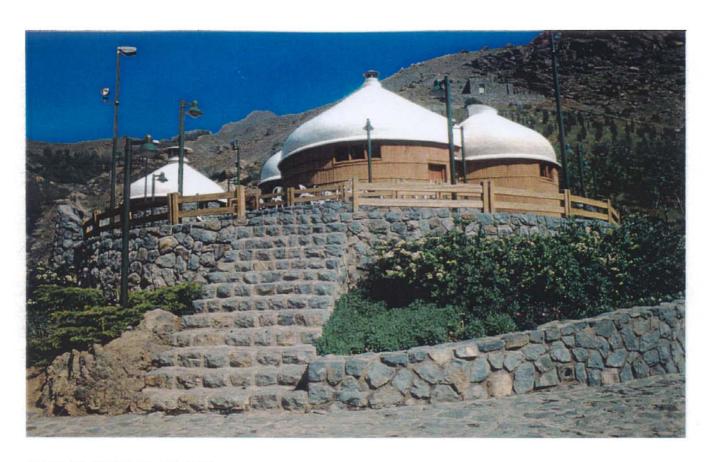


Above: The Azeri House of Culture.

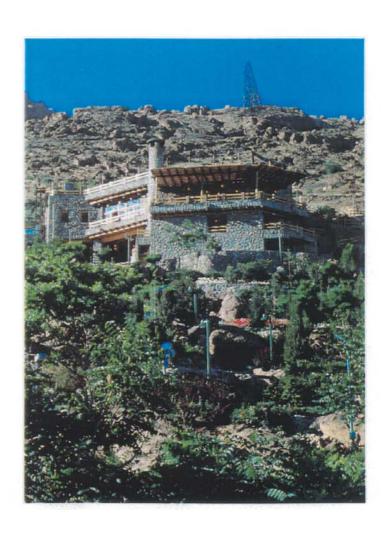
Below: Terrace at the Azeri House of Culture.



Bagh Sangi Jamshidieh, Tehran, Iran



Above: The Turkmen House of Culture.



Right: The Kurdish House of Culture.