

The Quest for a Spiritually Inspired, Holistically Sustainable Habitat: Nuran- The City of Illumination, Isfahan

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Summary Statement

In 1977, my firm¹ was commissioned and given the mandate to master plan an ideal city within the historic setting of the Isfahan region² to house and support the staff and families of the Atomic Energy Organization of Iran. Together with the private sector this town was to grow to be a satellite city of 100,000 populations and contribute to the overall growth of Isfahan itself. It was agreed with the Client at the outset that progressive strategies and best world technological advances to be incorporated in the plan, its implementation and governance that should help establish new fundamental principles for culturally relevant and environmentally adaptive new towns in the hot arid, desert regions of the Iran. Symbolically, for this aspirational, transcendent, sustainable, solar energy based place, the name chosen was: “Nuran, the City of Illumination”.

Introduction

The Iran architectural experience with modernity between post-WW II and the revolution of 1979 occurred in the context of the microcosm of one of the most ancient civilizations and fully in the macrocosm of advanced world architecture transforming from the Bauhaus model to Post-Modernism and Critical Regionalism. Within this context a small cadre of Iranian architects and engineers, primarily trained from the 1950s to 1970s in the United States and Europe, were given a mandate by the hierarchy of the country to build a new identity for modern Iran in association with leading professionals from the west.³ The progressive vision of the Project Client encouraged incorporation of best world practice to realize a new energy efficient urban paradigm for the long term socio-economic benefit of the country.

The Master Plan

The Paradise Garden⁴, as both metaphor and phenomena, as a restful place in harmony with nature, has remained the perennial paradigm for place making in Iran (Fig.1). One of the most noted examples of the Paradise Garden motif was realized in the 17th c Safavid *Chahar Bagh* of the city of Isfahan (Fig.2). Thus, it was only natural to select this archetypal model for the utopian theme that would help give form and order to the new city of Nuran. Although the city was never realized due to historical changes in 1979, the following describes the physical master planning principles of this spiritually inspired ideal, Paradisiacal city, which may have cogent relevance even today for place making.

¹ The Mandala Collaborative was contracted for the Master Plan and Phase I design of Nuran. Associated Consultants were Dubin-Bloome: Solar Energy; Dr. August Komendant: Construction Technology; Peter Walker: Landscape Planning; League Engineers: Infrastructure Engineering

² Isfahan, located in central Iranian plateau, dates to Elamite Period of 2500 BC and was 17th c capital of Iran

³ In relation to the Nuran project, my firm, Mandala Collaborative had already collaborated with the ecological planner, Ian McHarg, in the Pardisan Environmental Park project in Tehran; with SOM in master planning two new towns; and with Louis Kahn and Kenzo Tange in the concept planning for the Abbasabad urban center of Tehran. Meanwhile, my appointment to teach at Harvard and Yale in 1977 allowed me direct working relations with US Consultants, expert in bio-climatic and solar energy based design.

⁴ The word paradise comes from the old Zoroastrian Avesta *paridayda* meaning “walled enclosure”. Eventually, it appeared in Greek as *paradeisos* in the 4th c by Herodotus in the *Anabasis* that described the four quartered garden (*Chahar Bagh*) of Cyrus the Great built in Pasargadae in 550 BC. The *Chahar Bagh* theme has endured in the design of carpets, miniature paintings and poetic references into the Islamic period, inspiring both the open garden plan typology (*Bagh*) and the courtyard plan typology (*Hayat*).



Fig. 1 Paradise Garden Carpet NW Iran, 18thc
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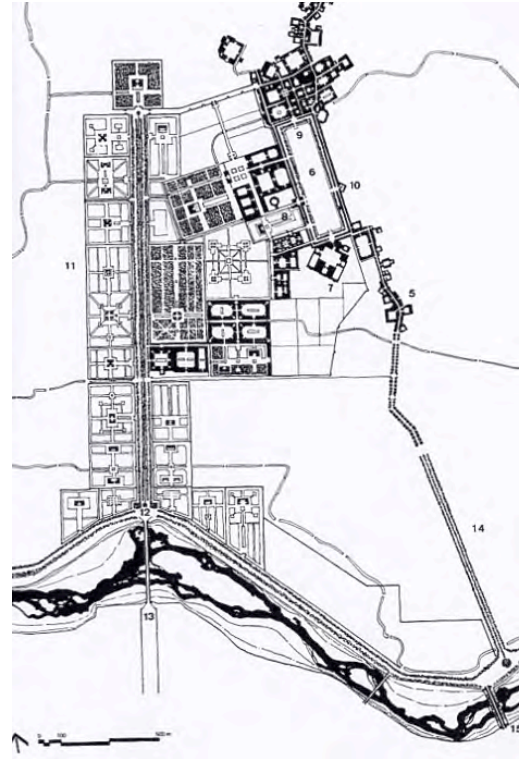


Fig. 2 Plan of Safavid Isfahan, 17th c
 Drawing courtesy of Nader Ardalan

Regional Context & Natural Geometry

Nuran was conceived to be serenely set within the context of a demanding natural environment. Its sense of place was reinforced by a dramatic enclosure of two mountain ranges. The city was organized along the geometries created by the alluvial fans at the base of these mountains that sloped downwards and focused upon the natural low centerline of the great valley, which became the new verdant *Chahar Bagh* of the city. The valley was punctuated by two hillocks- a high one on the east and a lower one on the west, which provided dramatic outward views towards the cityscape of Isfahan, while serving as a gateway to Nuran from that historic city. In fact, the natural geo-physical setting of the city was so oriented that its central town axis was on direct alignment with the great Blue Dome of Masjid-i-Shah (Imam), thus generating the organic "Spiritual Axis" of the plan (Fig. 3 & 4).



Fig. 3 NURAN regional context Model
Courtesy of Nader Ardalan

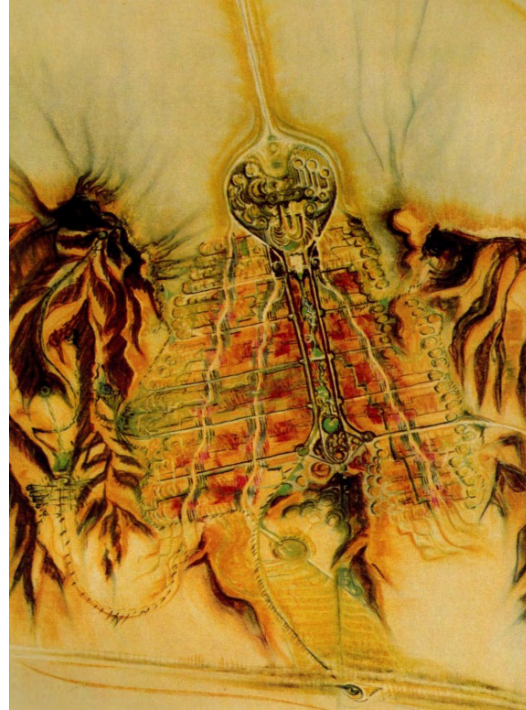


Fig. 4 Nuran Master Plan
Drawing courtesy of Nader Ardalan

Order of Earth, Water, Garden & Shadows

From a concern for the economic use of the land, the soil from the center of the site, where the deposits were greatest and most fertile, was excavated and placed as top soil, transforming and creating a system of great terraces over the rocky terrain of the upper valleys. Through manifest and hidden channels, irrigation water was then distributed by gravity from the high terraces across Nuran until all waters would reach their lowest level at the very center of the city. The order of garden naturally followed the pattern of the water. Just as water was dispersed across the terraces, trees and shadows would be born and nourished by it. By these acts, the central city spine became a great linear, public garden with four channels of water (*Chahar Bagh*) irrigating rows trees, casting cooling shadows.

Order of movement, Public and Private Spaces

The planning goal was to create a walkable, pedestrian oriented city, while accommodating an effective transportation network. Two main tree-lined boulevards flanked the central public garden and gave access to it by private and public vehicular transit, linking it with the west and east nodal points of the town. The remaining automobile traffic would flow along tree-lined streets running perpendicular to the central garden. Alternating with the vehicular roads was a network of shaded, landscaped, randomly shaped pedestrian pathways and children playgrounds which would lead to the central *Chahar Bagh*, where museums, libraries, schools and playfields were located. By these people walking strategies, air pollution would be minimized and the wellbeing of inhabitants enhanced.

The different types of public spaces found in Nuran dealt with the active/passive nature of public activities. The west hillock, closest to Isfahan, became the active bazaar/commercial head- “the Place of Gathering”, while the hillock on the east became the more reflective, passive educational head-“the Place of the Academy”.

Order of Energy & Implementation

Traditionally, Iranian buildings have been energy efficient. Compact, mid-density urban forms, correct solar orientation and good passive strategies were designed into all the city's buildings, some of which would also have active rooftop solar collectors, while a solar farm of parabolic collectors was considered to be placed in the industrial part of the town located to the east. These energy conservation and productive strategies would reduce fossil fuel consumption by 30 to 40%, as compared with business as usual policies, with an economical return on investment in less than 10 years.⁵

Nuran would grow from the west to the east in contiguous stages, commencing with the first stage consisting of a small neighborhood of about 3,000 populations with 580 dwelling units and the necessary commercial, community and infrastructure facilities. A process of design and user evaluation and feedback would be sponsored in order to help monitor and improve upon the many innovative planning and architectural strategies proposed for Nuran.

Order of Architecture

The architectural approach was based upon a compendium of research studies, including the 1974 international research publication of the Habitat Bill of Rights⁶ that was presented at UN Habitat 1 in Vancouver in 1976. This was augmented by a specific regional survey study prepared for Nuran in 1977, which showed the adaptive form of the indigenous courtyard plan typology was preferred by most respondents to the more recent slab or block apartments that had become prevalent in the region.⁷ From a desire to build sustainably, economically and within the tight development time goals, and from analysis of the surrounding limestone mountains, a new semi-industrialized stone/concrete architecture for Nuran⁸ was conceived that would also create a visual harmony of the built forms to its natural limestone mountainscape (Fig 5 & 6).

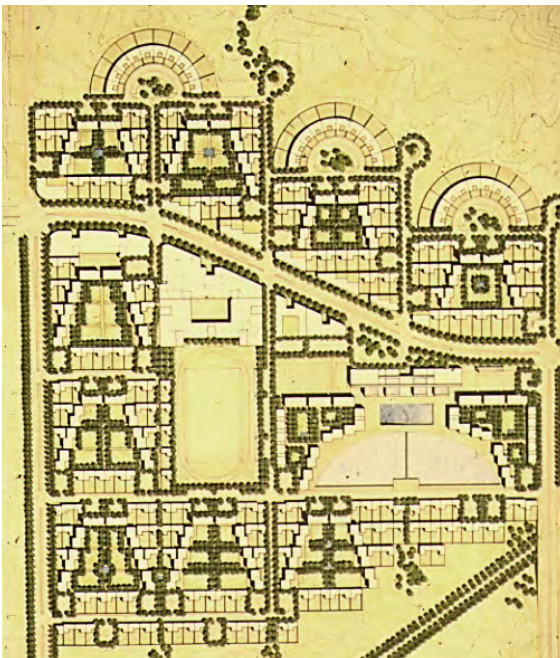


Fig. 5 Nuran Model Community Plan
Drawing courtesy of Nader Ardalan



Fig. 6 Nuran Garden Court Dwellings
Drawing courtesy of Nader Ardalan

⁵ Advanced energy efficient, passive and active design systems were studied by the project consultants, Dubin-Bloome Associates of New York City, who specialized in integrated community energy systems.

⁶ Habitat Bill of Rights, a research study directed by Nader Ardalan with Jose Luis Sert, Moshe Safdie, George Candilis and B.K. Doshi in 1975 defining qualitative criteria for better housing & community design, which was presented to the first Habitat Conference held in Vancouver, 1976

⁷ Mandala Collaborative undertook a Survey of social and architectural preferences in Isfahan region in 1977

⁸ Under direction of Dr. Komendant a Cyclopean stone/concrete system of building construction was proposed.

Conclusion

As a tree, the city was envisioned to take time to develop and mature. An attentive gardener in the form of a sensitive development authority was proposed to care for its growth, reap its fruits, and allow its residents to participate in planning for its sustained existence. During the critical cultural transformations of Iran, as it encountered the new global realities of the 20th century, Nuran was to be a living experiment to the implicit will of this re-awakened civilization that asked for a new cycle of its perennial worldviews to unite the multiplicity of its inhabitant views with a sense of oneness, both socially and with its relation to nature. The spiritually inspired, holistically sustainable ethic so practically evident in all aspects of Nuran might have experientially helped illuminate all those who would come into its field of gravity. In retrospect, the town was conceived as a place through which the inexhaustible energies of the cosmos could pour forth into meaningful human cultural manifestations, as Rumi's poem reminds us:

“Were there no hope of the fruit, would the gardener have planted the tree?”

Bibliography

- Albert Dietz and Laurence Cutler (Eds.) *Industrialized Building Systems for Housing* (Cambridge: MIT Press, 1971)
- Buckminster Fuller. *Utopia or Oblivion: the Prospects for Humanity* (New York: Bantam Book, 1969)
- Cliff Tandy (Ed.). *Handbook of Urban Landscape* (London: Architectural Press, 1971)
- Donald Wilber. *Persian Gardens & Garden Pavilions* (Tokyo: Charles E. Tuttle Company, 1962)
- Dubin-Bloome Associates. *Building the Solar Home* (Michigan: University of Michigan Press, 1978)
- Eugene Flandin and Pascal Coste. *Voyage En Perse* (Paris: J. Claye and Co., 1851)
- Fredy Bemont. *Les Villes De L'Iran* (Paris: Fabre & Co., 1969)
- Harvey Cox. *The Secular City* (New York: Macmillan Publishing, 1966)
- Herodotus. *The Histories* (Translated by Aubrey de Selincourt. London: Penguin, 1959)
- Ian McHarg. *Design with Nature* (New York: The Natural History Press, 1969)
- Joseph De Chiara & Lee Koppelman. *Urban Planning and Design Criteria* (New York: Van Nostrand Reinhold, 1969)
- Kevin Lynch. *The Image of the City* (Cambridge: The MIT Press, 1960)
- Mandala Collaborative and SOM. *Jondi Shahpour New Community* (San Francisco, 1973)
- Mandala Collaborative and WMRT. *Pardisan* (Philadelphia: Winchell Press, 1975)
- Mandala Collaborative. *Nuran* (Boston: Mandala Collaborative, 1978)
- Medard Gabel. *Energy, Earth and Everyone* (New York: Anchor Books, 1975)
- Mircea Eliade. *Cosmos and History* (New York: Harper and Row, 1959)
- Nader Ardalan (Ed). *Habitat Bill of Rights* (Tehran: Hamdami Foundation, 1976)
- Nader Ardalan and Laleh Bakhtiar. *The Sense of Unity* (Chicago: Chicago University Press, 1973)
- Nader Ardalan, "Architecture Pahlavi after WWII" *Encyclopedia Iranica* Vol. II pp. 351-355, London, 1986
- Robert Fishman. *Urban Utopias in the Twentieth Century* (Cambridge: The MIT Press, 1977)
- Rumi. *Mathnawi* (Translated by R.A. Nicholson, London: Luzac and Co., 1925-40)
- Seyyed Hossein Nasr. *The Encounter of Man and Nature* (London: George Allen & Unwin, 1968)
- Sigfried Gideon. *The Eternal Present* (New York: Bollingen Series, 1964)
- Victor Olgay. *Design with Climate* (Princeton: Princeton University Press, 1963)
- Werner Goehner. *Pueblos: Cities of Cibola* (Ithaca: Cornell University, 1977)
- Yi-Fu Tuan. *Topophilia* (New Jersey: Prentice-Hall, 1974)