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INVISIBLE / VISIBLE

Fujan Fahmi

“Without smell, taste and color, it exists in nature in a pristine state. It is a prerequisite to any organism’s presence and this planet’s sustainability. It flows through us, constituting the vast majority of our bodies, composing the entire symphony of existence.”

Hiroshi Osada, *Almost Nothing,
Yet Everything: A Book about Water*¹

Combined with soil features and topography, water forms the physical substrate that exerts forces of various kinds on our ecosystems. Its dynamics are linked to the peculiarities of topography. Like many natural processes, part of the beauty of the power of water lies in its indomitable nature, which can sometimes become threatening. Sophisticated societies are nowadays quite capable of protecting themselves against natural threats. However, the unknowns, the extremes, and the natural phenomena we cannot predict still pose significant peril. So, while we may praise this element, we fear it so much at the same time that we have always attempted to exercise our dominance over it, dictating our directives.

The illusion of control over natural processes has led to harmful environmental investments.² Meanwhile, we have all contributed to the climate change of entire regions. We have seen entire landscapes changed to suit our needs, leading to disruptions in weather patterns and extreme weather events. Most of the impacts are felt in the water cycle, including natural calamities; their frequency and magnitude are predicted to intensify in the coming years.³ Now, the role of design will inevitably have to change. Alongside the formation of spaces, a significant reshaping of our current urban and infrastructural landscapes is inevitable. Landscape architecture has a role to play in preventing waste and disruption while supporting resilient, dynamic ecosystems that inspire people to become more adaptive.⁴

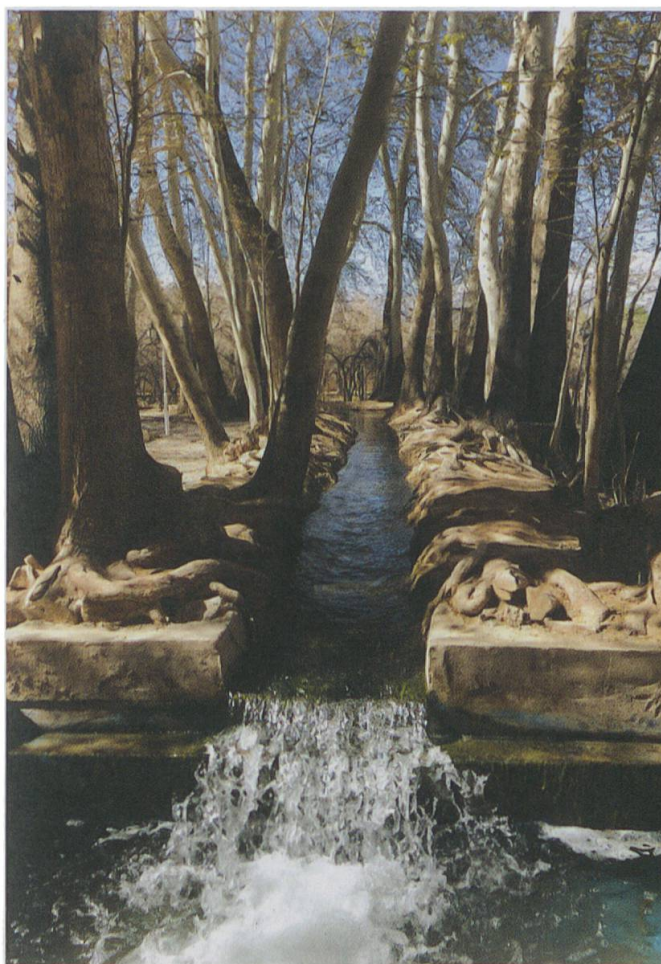
Humans have long influenced the ecological–morphological conditions of water. For instance, in Switzerland, Europe’s “water castle,” roughly half of the 60,000 kilometers of streams and rivers have been straightened, dammed, canalized, or given retaining structures.⁵ Desert cultures such as in Iran have canalized precious underground water flows to guide and use the rare element economically. Throughout the arid regions of Iran, both agricultural and permanent settlements are supported by the ancient *qanat* system of tapping alluvial aquifers at the heads of valleys and conducting the water along underground tunnels by gravity, often over many kilometers. Thoughtfully considering water infrastructure

management under extreme conditions, Iran's ancient, engineered water systems appear to offer a viable source of inspiration in revising sustainability perspectives in landscape architecture. After all, the value of systems such as qanat lies precisely in the interwoven knowledge they can provide us rather than in their expression as merely a technical solution to hydro-management.⁶

The logic and complexity of the manufactured framework respond to the potential for calamity with a far-sighted solution that is a classic display of human inventiveness. The Persians have turned an otherwise inhospitable desert into a garden.⁷ In so doing, they have gained in-depth expertise in terrain morphology that has proved crucial in establishing a close relationship with their territory.⁸ The veins of the desert are a manufactured water harvesting system, extracting it from the earth by gravity only, requiring no additional energy or cost, and taking advantage of the existing natural environment, material technology, and indigenous knowledge. Negar Sanaan Bensi explains that the word "territory" can be considered according to two lineages: one directly from the Latin word *territorium* "the land around a town," and the older root *terra*, "the dry land and earth," from the Indo-European word *ters*, dry.⁹ Hence, in Avestan, it evolved into the word *taršna*, meaning thirst, while in modern Farsi it became *tešneh*, literally thirsty. The desire to drink water could be considered as the impetus and motive for people to seek a way

to inhabit a bare land and explore its hidden waters. In addition, it urged people to envision, create and cross boundaries within their land to favor the process of habitation.

The Pahlavanpour Garden in the town of Mehriz, Iran, exemplifies the array of design methods that have evolved and been adapted to the challenging climatic conditions. Located on a sloping plain, the garden is surrounded by the Shirkooh Mountains. Entering the enclosed garden, the visitor is welcomed by the gentle whisper of a stream flowing through a humble, almost



Water stream in the Garden
of Pahlavanpour, Mehriz, Iran

forest-like garden, nourished by the Hassan Abad-e Moshir Qanat. Among old plane trees, alongside fruit trees, an oasis emerges amid a harsh region. From its first appearance, the stream flows through the houses and gardens of Mehriz, and along its course a line of trees has been cultivated to save the water from evaporation. The mountain spring water, invisible at first, is returned to the surface and forms a green belt around the town, greatly benefiting the quality of the climate.¹⁰

Ancient systems serve as the best role models in dealing with impending climatic shifts: one glance back

at qanats reveals the ability of these timeless constructions to provide a variety of city ecosystem benefits by driving urban resilience. Over the centuries, qanats have emerged with the overarching goal of directing water from its source to its destination. Archaeologist Henri Goblots recognizes the system as one of the most ingenious engineering inventions in human history.¹¹ Extracting hidden waters and landscaping oases and gardens, creating paradises teeming with vitality, simply could not have been accomplished without a well-spring of imagination.¹²

- 1 In his book (New York: Enchanted Lion Books, 2022), the Japanese poet Hiroshi Osada explores the functions, properties, and inherent contradictions of water.
- 2 In an interview, Kristina Hill, Professor at the University of California, Berkeley in Climate Adaptation and Environmental Justice, discusses her presentation on this issue at the NZILA Firth Conference in Christchurch, November 2019: "Mitigating Natural Disasters through Landscape Design," *Landscape Architecture Aotearoa*, August 5, 2019, <https://www.landscapearchitecture.nz/landscape-architecture-aotearoa/2019/8/4/mitigating-natural-disasters-through-landscape-design> (accessed July 4, 2022).
- 3 See UN-Water, *Summary Progress Update 2021: SDG 6, Water and Sanitation for All*. Version: July 2021 (Geneva: UN-Water, 2021).
- 4 Hill, "Mitigating Natural Disasters" (see note 2).
- 5 Daniel L. Vischer, *Die Geschichte des Hochwasserschutzes in der Schweiz: Von den Anfängen bis ins 19. Jahrhundert*, Berichte des BWG, Serie Wasser Nr. 5 (Bern: BBL, Vertrieb Publikationen, 2003).
- 6 Mehdi F. Harandi and Marc J. de Vries, "An Appraisal of the Qualifying Role of Hydraulic Heritage Systems: A Case Study of Qanats in Central Iran," *Water Science & Technology: Water Supply* 14, no. 6 (2014), 1124–32.

- 7 Hans E. Wulff, "The Qanats of Iran," *Scientific American*, April 1, 1968, 94–105.
- 8 Negar Sanaan Bensi, "The Qanat System: A Reflection on the Heritage of the Extraction of Hidden Waters," in C. Hein, ed., *Adaptive Strategies for Water Heritage: Past, Present and Future* (Cham: Springer Open, 2020), 41–57, here 53.
- 9 Bensi, 53.
- 10 Garden visit and observation during the seminar trip "Paradise Lost: Building a Dream Between Mountains and Deserts," March 15–24, 2019 with the Chair of Landscape Architecture at the ETH Zurich of Christophe Girot.
- 11 Henri Goblots, *Les qanats: Une technique d'acquisition de l'eau* (Paris: Mouton, 1979).
- 12 "The Avestan word *pairidaēza-*, Old Persian **paridaīza-*, Median **paridaīza-* (walled-around, i.e., a walled garden), was transliterated into Greek *paradeisoi*, then rendered into the Latin *paradisus*, and from there entered into European languages, i.e., French *paradis*, and English *paradise*." "Garden i: Achaemenid Period," *Encyclopædia Iranica*, vol. X, Fasc. 3, 297–8, available online at <https://www.iranicaonline.org/articles/garden-i> (accessed July 5, 2022).