

Heritage, innovation in Iranian windmills



A water mill in Nehbandan
● TASNIM



A watermill in Tabas-e Masina
● BORNANNEWS

Iranica Desk

Wherever continuous winds have blown, the resourceful Iranians have pragmatically harnessed this divine blessing to enhance their livelihoods. Windmills, often regarded as one of humanity's first industrial creations, boast a rich history that stretches back through time.

In the vast expanse of Greater Khorasan, which encompasses the three provinces of South Khorasan, Khorasan Razavi, and North Khorasan, windmills have traditionally operated using the 120-day winds, particularly during the grain harvest season, from the north of Herat to the south of Sistan.

Among the regions of eastern Iran, the handcrafted structures found in the desert landscapes of South Khorasan Province hold particular significance. Recent surveys indicate that this province has the highest number of windmills in the country, IRNA wrote.

Historically, these windmills were employed to grind wheat using wind power, and they remained operational in South Khorasan, especially in Nehbandan, until about 70 years ago, thanks to the presence of

the prevailing 120-day winds of eastern Iran.

Unlike European windmills, which are designed with horizontal shafts, the windmills in this region feature vertical axes. Their design consists of two parallel walls that rise to a height of 10 meters and are spaced four meters apart, forming the general structure. In the northern part of this structure, large blades rotate, harnessing wind power. This rotation activates a large lever, which in turn moves a lower grinding stone and initiates the grinding process.

Currently, Darmian and Nehbandan have the highest number of windmills in Iran, though windmills can also be found in Birjand, Sarbisheh, Qaenat, and Khusf.

In the historical city of Tabas-e Masina, located in the border district of Darmian and dating back at least to the Parthian period, the abundance of fertile plains has led to a high number of windmills, with 60 structures recorded in this city alone.

Additionally, there are 16 sites with windmills in Nehbandan, with the highest concentration found in the city of Neh and the villages of Chahar Farsakh, Hamand, all of which are considered beautiful historical artifacts



A watermill in Sistan and Baluchestan Province
● MIZAN

of Iranian heritage.

Given the importance and uniqueness of Iran's windmills, efforts for their global registration began several years ago, and the application is currently being prepared for South Khorasan, Sistan and Baluchestan, and Khorasan Razavi provinces. Mohammad Hassan Talebian, who oversees the dossier of Iranian windmills, noted that this dossier is being compiled for the three provinces mentioned. However, with the number of windmills in South Khorasan province alone estimated at approximately 350 to 400 units, organizing and structuring this many windmills into a single application is indeed time-consuming.

He emphasized that all efforts and resources are focused on the windmills dossier, and more accurate information regarding the status of this application can be expected in the near future. Director General of the Cultural Heritage, Tourism, and Handicrafts Organization of South Khorasan Province, Hadi Shahvardi, stated that the province, with more than 308 identified windmills, is currently regarded as the capital of windmills in Iran. The application for the inclusion of these windmills on the UNESCO World Heritage list has been submitted.

He noted that 92 windmills in the province have the potential for global registration, adding that this number is less than the

total number of windmills present in the area, highlighting that efforts are underway to evaluate and finalize the application.

He mentioned that plans have been made for the restoration, boundary determination, and revitalization of the surroundings of some windmills, with local authorities providing support for the global registration process. Shahvardi emphasized that South Khorasan Province, which has nine registered global sites across six categories, holds the record for the registration of historical and natural sites on the World Heritage list. The global registration of the province's windmills will further showcase the unique capabilities of the province on an international platform.

Head of South Khorasan Province's Watermills Site said with the identification of two new windmills in the Qadamgah of Nehbandan, the province now boasts over 310 windmills across seven cities, solidifying its status as home to the highest number of windmills in Iran. Hossein Shabani noted that these windmills are distributed across 40 locations within the town of Nehbandan, Darmian, Sarbisheh, Birjand, Qaenat, Sarayan, and Khusf, with the majority located

in Nehbandan and Darmian.

He stated that 80 windmills have been successfully restored and reconstructed, and emphasized the need to activate and complete the flour production chain, as two windmills in Nehbandan and one in Darmian are currently operational during the 120-day winds of Sistan.

Shabani indicated that six windmills have been nominated for global registration as a result of the restoration efforts undertaken in Nehbandan and Darmian. He identified the main objective of the restoration efforts as enhancing the operation of the windmills and finalizing the global registration dossier.

He pointed out that, due to the significance of the international recognition of Iran's windmills, the number of windmills in various cities within the province is increasing thanks to new archaeological studies. Shabani noted that Nehbandan accounts for the highest number, with 110 windmills, followed closely by Darmian with 104.

He added that over 79% of Iran's windmills are located in South Khorasan, while approximately 14% are found in Sistan and Baluchestan Province, around 7% in Khorasan Razavi, and 1% each in Kerman and Yazd provinces.

Beauty, benefits of Garab Spring Complex

Iranica Desk

The holy shrine of Imam Reza (PBUH) is the focal point of Mashhad, drawing numerous visitors. However, the city also boasts many natural attractions that offer delightful experiences. One such gem is Garab Spring Complex, which comprises several springs, each with its unique features. This natural masterpiece is a valuable treasure, renowned for its abundant therapeutic benefits.

Despite its remarkable characteristics, Garab Spring Complex is located 50km from Mashhad and just 1km from the old Mashhad-Neyshabur road, yet it has not received adequate attention and remains difficult to access.

What makes this attraction particularly noteworthy is that the water from each spring contains distinct mineral compositions, resulting in a variety of tastes and colors, ranging from sour and salty to bitter. This diversity adds to the uniqueness of Garab Spring Complex, which includes several cone-shaped springs lo-



cated 500 meters apart, IRNA wrote.

The largest spring in this collection, characterized by its green water, sits atop a 30-meter-high mound and is considered the source from which the others flow.

Researchers have confirmed the valuable therapeutic properties of the spring water through extensive studies. Water geology

experts classify Garab Spring as part of chloride sodium iron-bearing and hyperthermal waters with high total dissolved solids and elevated acidity levels. Further scientific investigations reveal that the water from the springs is rich in chloride and sulfate salts, as well as saturated compounds, suggesting a connection to abundant underground sources of these min-



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erals. These compounds are remnants found in sedimentary deposits from the Triassic period.

For many years, local residents have sought healing from these springs for various skin ailments. Research indicates that the water significantly aids in eliminating waste materials from the body due to its unique compounds. Additionally, stud-

ies show that springs' water can be highly beneficial for treating joint diseases and enhancing the secretion of gastric fluids, bile, saliva, and pancreatic enzymes, among other therapeutic properties.

During your trip to Garab, amidst these beautiful springs, you will undoubtedly be drawn to a peak. This peak, with an elevation of about 70 meters, close-

ly resembles volcanic summits. If you climb to the top of this stunning peak, you will see its volcanic crater, which extends around eight meters from the summit down to the water's surface, while the rest is filled with water. There is an intriguing claim that this water basin may connect to an underground water tunnel. Regardless of the speculation, be sure to take advantage of the opportunity to enjoy a refreshing bath in its waters.

Overall, considering all the aforementioned information about Garab Spring Complex, it's clear this site is one of the unique and valuable natural heritages and tourist attractions of Khorasan Razavi Province. Not only is it fascinating for geologists, but its exceptional therapeutic properties make it an excellent option for attracting a diverse range of tourists and boosting local tourism. To fully realize this potential, greater efforts must be made to promote the spring and substantially improve access routes and facilities in the surrounding area beyond their current state.