HISTORY OF THE ZARAFSHAN RIVER AND THE BUKHARA WATER MANAGEMENT SYSTEM

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Annotation: *This article highlights the important role of the Zarafshan River in ensuring life and agriculture in the region and its significance in the Bukhara water management system.*

Keywords: *Polymetey, Sughd River, Zarafshan River, Darghom and Kattakurgan reservoirs, Altyn Daryo, Rudi Mosaf, Zarafshan Glacier, Fandaryo.*

The Zarafshan River originates in the Zarafshan Range of Tajikistan and flows west through Uzbekistan, passing cities such as Samarkand and Bukhara, before emptying into the Kyzylkum Desert. Its waters have historically been the lifeblood of agriculture and urbanization in the arid region. The river's importance dates back more than 2,500 years. Known to Greek historians as the Polymetheus, it was important to the Sogdians, an ancient Iranian civilization known for their advanced irrigation techniques. They built canals to channel water for crops such as wheat, barley, and orchards, helping to fuel the growth of Silk Road cities. The river's fertile valley connected Persia, China, and the Mediterranean, facilitating trade and cultural exchange.

During the Islamic Golden Age (8th–12th centuries), Bukhara emerged as a cultural and scientific center. Water management systems were increasingly developed, combining aqueducts (underground channels carrying groundwater) and surface canals such as the Shahrud Canal, providing for the urban and agricultural needs of Bukhara. The Bukhara system relied on a network of arq (canals) and communal governance.

The Zarafshan River, named after Polymetheus by the ancient Greeks, is of significant historical and geographical importance in Central Asia. The name Polymetheus reflects the river's important role in supporting life and agriculture in the region, much like the mythological Prometheus who brought fire to humanity. “The Zarafshan River was known to the ancient Greeks as Polymetheus”[13]. The Zarafshan River, which flows through what is now Tajikistan and Uzbekistan, was a lifeline for ancient civilizations, including Sogdiana and later the cities of Samarkand and Bukhara, both on the Silk Road. The Greeks encountered the river through the campaigns of Alexander the Great and named it Polymetheus, noting its nourishing and life-giving properties.

[13] Smith, William, ed. (1857). “Oxia Palus”. *Dictionary of Greek and Roman Geography*. Vol. 2. London: John Murray. p. 505.

The Zarafshan River, historically known as the Sogdian River, is one of the most important waterways in Central Asia. At 877 kilometers (545 miles) long, it flows through Tajikistan and Uzbekistan, feeding some of the region's most fertile lands. "It was also formerly known as the Sogdian River. The river is 877 kilometers (545 miles) long and has a drainage basin area of 17,700 square kilometers (6,800 square miles)"[14]. It played a crucial role on the Silk Road, and major cities such as Samarkand and Bukhara depended on its waters for irrigation. Today, the Zarafshan River is essential for irrigation, supplying water to vast cotton and grain fields in Uzbekistan. It feeds into a vast network of canals, including the Dargam and Kattakurgan reservoirs, which regulate water flow for agriculture. However, overexploitation and climate change have led to declining water levels and created challenges for sustainability. The Zarafshan River is a vital source of life for millions of people, preserving Central Asia's legacy as the "Golden River" (Zarafshan means "gold-spreader" in Persian). According to the 10th-century Persian historian Muhammad Narshahi, the Zarafshan River, an important waterway in Central Asia, was originally known as the Rudy Mosaf in ancient times. Narshahi, known for his work "History of Bukhara", documented the cultural and geographical history of the region, including the importance of the river to early settlements and civilizations. According to historian Muhammad Narshahi, in ancient times the Zarafshan River was known as Rudi Mosaf[15]. The Zarafshan River has been a vital resource for society for thousands of years, supporting agriculture, trade, and urbanization along its banks. Its name, Zarafshan, is of Persian origin and means "gold spreader," perhaps referring to its role in irrigating fertile lands or the gold nuggets once found in its waters. However, Narshahi's reference to its earlier name, Rudy Mosaf, suggests that it has pre-Islamic or perhaps Sogdian origins, reflecting the river's importance to ancient Central Asian cultures. This historical renaming highlights the region's layered history, where linguistic and cultural shifts—from pre-Islamic Iranian civilizations to Persian and Turkic influences—have reshaped geographical identities. The Zarafshan River remains central to the legacy of cities like Samarkand and Bukhara that flourished along its banks as hubs of the Silk Road.

It originates from the Zaravshon Glacier, located at the junction of the Turkestan and Zaravshon ranges in the Pamir-Alai mountain range of eastern Tajikistan. This glacier-fed river begins its journey at an altitude of over 3,000 meters above sea level. In its upper reaches, especially before joining the Fandarya, it is traditionally called Matcha. "It rises from the Zaravshon Glacier, near the junction of the Turkestan Range and the Zaravshon Range of the Pamir-Alai Mountains in Tajikistan. In its upper reaches, above

[14] Зеравшан (река в Ср. Азии), Great Soviet Encyclopedia
[15] Абу Бакр Муҳаммад ибн Жаъфар Наршахий. Бухоро тарихи. Форс-тожик тилидан А.Расулов таржимаси. – Т.: Фан, 1966. –Б.18,45.

the confluence with the Fandarya, it is also called Matcha"[16]. Although it originally flowed into the Amu Darya in ancient times, due to the extensive diversion of water for agricultural use, especially cotton cultivation, it now flows into irrigation canals before reaching the land. The approximately 877-kilometer-long river is an important source of water for millions of people. It supports diverse ecosystems and provides water for domestic, agricultural, and industrial purposes. However, like many rivers in Central Asia, the Zarafshan is under environmental pressure due to climate change, retreating glaciers, and unsustainable water management practices. In addition to its ecological and economic importance, the Zarafshan Valley is rich in cultural and historical significance. It is home to ancient settlements and has been an important corridor for migration, trade, and cultural exchange for centuries. Today, the Zarafshan is overexploited, with conflicts over water rights between Tajikistan in the upper reaches and Uzbekistan downstream. Climate change and population growth are putting further strain on resources. Efforts to revive ancient techniques, such as the restoration of the keel, coexist with modern policies aimed at sustainable management.

In short, the Zarafshan River and Bukhara water systems demonstrate the dynamic interplay between environment, technology, and society. From ancient keel to Soviet-era canals, this history is having an impact on overcoming the ongoing challenges of balancing human needs and ecological sustainability in the arid land of Central Asia.

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