

## **GEOGRAPHICAL ROOTS OF TRADITIONS AND CUSTOMS RELATED TO THE RATIONAL USE OF WATER RESOURCES (ON THE EXAMPLE OF THE FERGANA VALLEY)**

*Annotation.* This article analyzes the geographical roots of traditions and customs related to the rational use of water resources using the example of the Fergana Valley. Recent ethnological, ethnoecological, ethnogeographical, and cultural-geographical studies show that each ethnos or ethnic group gradually adapts to the natural environment in which it has lived for a long historical period and develops economic practices that are harmonious with nature. The relief, climate, hydrological, and geomorphological characteristics of the Fergana Valley have contributed to the formation of unique irrigation systems and a traditional culture of water distribution. In the valley, the water management and distribution system—depending on soil type and crop maturation—was historically organized through a hierarchical network consisting of “soy”, “ena ariq”, “shoh ariq”, “quloq” and “dahana.” Creative use of this historical experience, without rejecting innovative approaches, has important practical significance for organizing rational water use, maintaining ecological balance, and addressing modern challenges in water resource management.

Typically, during the process of formation, each ethnos gradually adapts to the landscape of a particular territory. Through its economic activities, it modifies the natural environment to some extent, creating cultural landscapes and developing production methods based on the natural-geographical characteristics of the region it inhabits. As a result, it uses natural resources in a way that meets its needs without disrupting ecological balance, applying the most suitable methods. This process naturally occurs over long periods in a specific geographic environment inhabited by several generations of the ethnos [2; 4; 10]. Over time, the “ethnos–landscape” relationship reaches a state that is optimal both for the ethnos and for the landscape. This implies that a stable landscape also stabilizes the ethnos. Therefore, when an ethnos resides in a territory for an extended period, it adapts optimally to that environment and, as a rule, does not disrupt the natural balance, forming traditions and customs of resource use that are unique to that people and harmonious with nature. These traditions and customs reflect the people’s culture, perfectly adapted to their “native landscape,” and evolve as society develops; some practices may disappear, while new ones emerge. Traditions and customs grounded in a strong geographical basis are preserved over centuries and transmitted from generation to generation.

Scientific literature defines tradition as “a means of transmitting the historically accumulated experience of ancestors to future generations” [7], “a cultural phenomenon that emerges in the course of historical development based on natural and social needs and is inherited from ancestors to descendants” [3; p.124], and “a set of accepted rules and norms that have become ingrained in

people's consciousness" [7]. Customs (urf-odat), on the other hand, are a broader concept and are described as "rules and rituals accepted by the whole community as traditions" [3], and "patterns of behavior that have become embedded in people's daily lives, repeatedly practiced over a certain period of time, and accepted by the majority as norms of conduct" [3; p.125]. The formation of the traditions and customs of peoples occurs as a result of the wide-ranging influence of various geographical factors. Therefore, geographical factors influence not only the material culture of an ethnic group but also its spiritual culture and mentality, which is reflected in distinctive national characteristics, customs, traditions, and values.

In the culture of the ancient East, including the lifestyle of the Uzbek people, traditions and customs have long been valued as a means of educating the younger generation and transmitting the experience of the older generation. The traditions and experience of ancestors are often regarded as absolute truth and placed at the level of law. A widely known saying states: "The West is governed by laws, while the East is governed by customs" [7].

Historical experience shows that the violation of the traditions of the use of nature by an ethnic group formed in a particular area has a significant impact on the deterioration of environmental stability, and ultimately on the survival or migration of this or that ethnic group in the "Mother" landscape. Migration, the movement away from one's historical homeland, can destroy an ethnic group's language, territorial integrity, culture and traditions, and ultimately lead to its decline. [6; 14]. The emergence of rules of behavior, prohibitions, and norms regarding water use that are "repeated over a certain period of time," "inherited from ancestors to descendants," and "accepted by the whole community" is closely related to the climate, relief, hydrogeological conditions of a particular region, the level of water availability, and, in general, the laws of rhythm and periodicity in nature.

Studying the traditions and customs of our ancestors aimed at the rational use and protection of water on the basis of an ecological-geographical approach, and creatively applying them without rejecting innovative development, may also produce important practical results. As S.A.Arutyunov noted: "...traditions can exist without innovations, but the opposite is impossible." [1; 221-b]. But there's a lot of caution when it comes to putting tradition and innovation into practice, because focusing too much on tradition can lead to volatility and stability, and innovation can lead to instability, unpredictability, and weak governance. [1; 2]. Through the geographical comparison of historical data, it is possible to observe the significant influence of geomorphological, soil-climatic, hydrological, and socio-geographical factors in the formation of customs and traditions related to the rational use of water resources. In this study, by conducting a historical-geographical comparison of the traditional water-use cultures formed in the Khorezm oasis and the Fergana Valley, the following conclusions were drawn (Figure 1).



The Khorezm oasis occupies the lower left parts of the Amu Darya, where a wavy alluvial plain has formed due to the accumulation of riverbed deposits over many years. The absolute elevation of the relief gradually decreases from east to west, from 240 m to 30 m [5; p.284]. According to Ya.G‘ulomov, in ancient Khorezm the first canals dug were “flood canals,” which carried water only during periods when the Amu Darya overflowed. Later, a system of canals known as “arna” developed, stretching along the river’s course and having several small intake sections called “soqa”. The head parts of the soqas were usually constructed at locations where water flowed even during periods when the river level was at its lowest, and the distance between them was approximately 6 km [12].

Great attention was paid to the gradient of the canal route in order to ensure that a larger volume of water could pass through the arna, that water would flow naturally into the “yop” canals distributing water downstream, and that the fertile silt carried by the water would reach the fields. To discharge excess water from the arna back into the river, special canals called “badrov”, equipped with dams at both their beginning and end, were constructed. The yop canals were further divided into smaller ditches called “badoq,” which in turn were subdivided into “solma” and “tortma.” To prevent erosion at the head of the badoq canals, protective structures known as “doldarg‘a” were used. When the water contained excessive silt, devices called “to‘qurtqa” (distributors) were employed to take water from the upper layer. Water from the tortma ditches was lifted upward using a water wheel (chigir). At the ends of the solma canals, small ponds were dug in order to discharge excess water [8; 11; 12].

While the population of the Khorezm oasis developed a system for regulating the use of the waters of the Amu Darya, the largest river in the region, in the Fergana Valley a distinctive traditional culture adapted to the natural conditions of the valley was formed, based on the use of the alluvial fans of numerous small rivers. In the valley, irrigation systems begin to form from the point where rivers flow out of mountain gorges onto the foothill plains and create wide alluvial fans. Due to the absolute elevation and geomorphological structure of the foothill plains, these alluvial fans were formed at different altitudes. For example, the absolute elevation of the upper part of the Isfarasoy alluvial fan is 520 m, and Sokhsoy is 660 m, whereas this indicator reaches 920 m in Shakhimardonsoy, 950 m in Govasoy, 1000 m in Kohortsoy, and 1100 m in Oqburasoy [13]. The upper reaches of the riverbeds and the initial parts of the alluvial fans were not used for agriculture; instead, sacred pilgrimage sites and shrines were established there.

In the valley, artificial irrigation systems are generally referred to by the common name “ariq”, while large main canals are called “soy”. Usually, the “soy” and “ariq” are diverted from riverbeds located at a higher elevation than the irrigated lands. Water from the soy first flows into “ena ariq”, and from there into “shoh ariq”. The “ena ariq” supplied water to several villages, whereas the “shoh ariq” provided water to individual villages.

From the shoh ariq, canals allocated for neighborhoods were called “quloq,” and the smaller canals distributed among individual farms were known as “dahana” [9]. In distributing water to the canals, devices known as “labgardon” were used, while “sepoya” structures were employed to protect hydraulic constructions and agricultural lands from floodwaters. On the ena ariq, water mills (osiyo) and “objuvoz” installations—typical for mountain rivers—were constructed. If, in ancient Khorezm, excess irrigation water flowed into small ponds located at the ends of the “solma” canals, in the Fergana Valley almost all water was ultimately used for irrigation. In some years when water was abundant, excess water even reached the Syr Darya River.

In conclusion, the natural geographical conditions of the regions of Lower Amu Darya, Murgab, the Middle and Lower Zarafshan, Surkhandarya, and the Fergana Valley—which have been inhabited since ancient times in Central Asia—particularly their surface structure, climate, hydrography, soil, and other characteristics, led to the formation of irrigation systems and water-use cultures specific to these areas. The creative application of such practices, developed in accordance with the natural geographical conditions of each region, can help prevent contemporary problems such as the rapidly increasing water scarcity, soil erosion, rising groundwater levels, and secondary salinization.

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