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HISTORY OF DAMS ON THE BANKS OF THE MURGAP RIVER IN TURKMENISTAN

Hommyyev T.B.

The water of the Murgap River, which flows in the territory of the Mary Velayat in Turkmenistan, has been used in a wider and more complete way for many centuries than others. Dams and reservoirs have been built along this river. The abundant water of the river fully provided the people living in its valley, agriculture and animal husbandry, and contributed to the development of human civilization in its history. A dam is a hydro technical facility built to intercept the flow of river water, raise its level and use it properly. Over the course of history, dozens of dams were built along the Murgab River. The purpose of all of them was to carry out irrigation works and establish water supply for the people. Originally, dams were built from plant materials – various long-stemmed dry grasses, wood, soil, stone, stone and earthenware, but today they are built from a combination of concrete and reinforced concrete. Studying the history and construction practices of those dams is interesting and important today.

Keywords: Murgap River, Turkmens, dams, construction works, hard work, experience.

ИСТОРИЯ ПЛОТИН НА БЕРЕГАХ РЕКИ МУРГАБ В ТУРКМЕНИСТАНЕ

Хоммыев Т.Б.

Воды реки Мургаб, протекающей по территории Марыйского велаята в Туркменистане, на протяжении многих веков использовались шире и полнее, чем другие. Вдоль этой реки были построены плотины и водохранилища. Обильные воды реки полностью обеспечивали людей, живущих в ее долине, использовались в земледелии и животноводстве, способствовали развитию человеческой цивилизации. Плотина – это гидротехническое сооружение, построенное для того, чтобы перехватить поток речной воды, поднять ее

уровень и использовать по назначению. На протяжении истории вдоль реки Мургаб были построены десятки плотин. Их назначением было проведение ирригационных работ и налаживание водоснабжения населения. Изначально плотины возводились из растительных материалов: различных длинностебельных сухих трав, дерева, грунта, камня, глины, а сегодня их строят из соединений цемента и железобетона. Изучение истории и практики строительства этих плотин интересно и важно в наши дни.

Ключевые слова: река Мургаб, туркмены, плотины, строительные работы, тяжелый труд, опыт.

The first irrigation facilities in Turkmen land were built in the Neolithic and Bronze Age, that is in the 4-3 millennia BC. Traces of irrigation facilities built in the past can be seen even today. These simple irrigation facilities were built by hand only under heavy labour conditions.

Historical data testifying to the presence of various water bodies along the Murgap River since ancient times have been preserved. Archaeologist Z.I. Usmanova in her work wrote that in the 6th-5th centuries BC, the Murgap River was drained and the water of that river irrigated the large reservoir near Gavirgala [9, p. 164-200]. W.M. Masson provides valuable information about water bodies in his scientific work “Ancient agricultural culture in Margiana” [6, p. 91-92]. Al-Makdisi, an Arab geographer, who lived in the 10th century, while talking about the Murgab River, wrote that its water is kept in one place until it becomes pure. Then he goes back to Merve, he mentions that there are ten thousand people working under the command of the emir who is looking over the water of the river for a special fee, and there are guards who protect him from the flood. It can be assumed that the place where the Arab geographer says that the water boils is the ancient form of the current Soltanbent waterworks. Makdisi himself writes in another place that the place where the water is pumped is a specially restored dam: “Murgap River is blocked in surprisingly by the wooden, before dams reaching Merve about 6-7 kilometres. To monitor the water level, gauges were installed in the middle of the river on a board

with a line drawn across it. When the water rises, its level rises to the sixtieth line of the gauge, which gives hope for a fruitful year. The people are happy because the river managers are increasing their water share. There are also covered reservoirs in Merv. Their water is distributed to the public in case of a dry year. More than a thousand people work in this giant water plant of Merv. The main dam has more than 400 cisterns, and if garbage piles up in front of them during the winter, the supervisors bathe with mummy and clean the cisterns" [7, p. 203]

According to academician Bartold, Merv must have been the place where silk production began, and then this valuable industry spread to the shores of the Caspian Sea. Sultanbent was also called Mubarekbent, it was built by King Malik. Soltanyap, a bountiful river flowing back from Bent to Merve, still bears its historical name. At the time of Sultan Sanjar, the dam was well protected. One thousand two hundred men were in charge of it. Sanjar died. One year the river overflows and throws away the dam. This place has already passed to the governorship of the Merv Khorezm kings. They lifted dam. Then the dam destroyed by the Mongols. Shahrukh, the son of Emir Temir, restores the dam they destroyed. Sanjar, one of the builders, has done great work in the restoration and beautification of Merv [4, p. 149-151]. This was also mentioned by the great Nowaýy. He compares Sultan Sanjar's Mervi with the new city built by Murze Sanjar next to it. One is the old man's heart and the other is the young man's heart. It is said that both hearts are filled with love for the Sanjars.

Another Arab author, Hafiz-i Abru, who lived about five centuries after Al-Makdisi, also wrote: "It is said that during the reign of Sultan Sanjar, 12 thousand people were employed in the protection of the river and other works" [7, p. 527]. According to the information the Murgap River and the dams along it are highly organized and monitored and necessaries were always in stock. In 1410 Sultan Bent began to be restored. According to Abdi Razzak Samarkand, in the first year after the dam was restored, five hundred oxen worked in the fields [7, p. 530]. This shows how agriculture has developed. Tourists in the Merv regions admired the perfect irrigation facilities and were interested in their structural features. They went to their own country and told the masters about what they saw.

Historian Mir Abdal Karimi wrote that Sultanbent was guarded by well-armed horsemen during the reign of Nedir Shah. Scientific data testifies that there were many people in the protection and service of this dam in the early times. Sultanbent was highly respected by historians of his time. Muhammed Kazim calls it the "Band of Saint Mary" Muhammed Kazym participated in the construction of Soltanbend [2, p. 75-76].

According to A. Lyapin, the dam mentioned by Makdisi was located in the place that is now called Kyrkkeleme. Ensuring the safety of dams, one of the largest types of irrigation facilities, has not been an easy task. After all, it was easy to get rid of it. Dams with brick intakes do not collapse easily. Russian scientist and orientalist V.A. Zhukovsky writes that "the history of Soltanbend is the history of Mary" [5, p. 174]. These facts mean that the fate of Soltanbend is closely related to the fate of the people. Besides Soltanbent, there were several dams along Murgab. But there was no dam bigger than Soltanbent upstream of the river. That is why he was called Bashbent – Seribent.

Below Soltanbent was a dam called Janalybent. It is not known when it was built. In the 20s of the 18th century the same name was used. Khiva historian Munis also mentions Janalybend in connection with the actions of Turkmen against Khiva kingdom in Mary in 1838. At the beginning of the 19th century, in order to protect this dam, the Sariks built a fort there and named it Janalybentgala. In the place of Janalybend, Mary "teke" later built Goshutbend under the leadership of Goshut Khan. It is not known what year the band was founded. We assume that it was built a year or two before the arrival of the Gajar troops that is in 1858-1860 [2, p. 78-79].

In the past, there were also dams built along the Murgap River. It is located in Tagtabazar district. A photograph taken in 1907 shows the traces of three ravines in the Murgap River. They are separated from each other by the direction of the river. The old course of the river is intersected by Bendi Nedir reservoir where it turns to the right. This device has been known in the literature since 1888. In the 1891 survey of Zakaspee County, "…it was built of "ýylgyn" sticks and mud. Its length is 38 meters and its height is about 3 meters. It is 4 meters wide. At the foot of its right

side, there is a 10-meter-wide area where water flows, and the water flowing from it goes to the water mill and the cistern located below. Treated water irrigates several fields. The dam's mouth opens wider when the summer months are needed" [8, p. 46]. It is noted that there are no major problems with maintaining the damage. Academician W.W. Bartold connects the name of the dam with the name of Nedir Khan [3, p. 68]. But its history goes much further.

A. Lyapin wrote that the use of the Nowhana water plant in this region probably dates back to ancient times. The pride in Handepe, where it originated, belongs to those times. Violent actions caused the dam to collapse. It is also possible that dams and canals were deliberately destroyed. Closing the dam in case of flooding was a very difficult and dangerous task. Waiting required the tireless labour of men and the skill of the "mirap". The work was complicated by the narrowness of the construction site. As is known from historical sources, in such cases, the flow of water was reduced by throwing heavy stones into the water. In such conditions, very difficult situations have arisen.

Unexpectedly, the water level rose very quickly, and the structural speed of the plant should not lag behind, because it was also possible that the water would run sideways and completely. Small stones, rubbish, firewood and soil were thrown into the water to prevent water from seeping into it. They were monitored for a long time until they settled well to the bottom of the dam. Since then, the device has been in use. But still, the need to constantly monitor and protect it is not removed. Guard houses and forts have been built near the dam for protection purposes. But no such buildings were found near Nedir Dam. It is thought that they might have set up the dam's defences differently.

People's living memories associate this point not with the name of Nedir the king, but with the name of the experienced mirap Nedir. He was able to solve some difficult problems. According to the elders, no matter how many stones they threw at the water, the current carried them away. In the end, five people were taken into the water together. After that, the water suddenly stopped flowing. Thus, in the folk memoirs, the importance and difficulty of this work are not unusual. These days, it

doesn't express itself. It was more isolated than Nowhana. A. Lyapin visited this institution in 1969 to study its traces [12, p. 15-16]. The dam was built to improve water supply to the Pendi and Marchak areas in central Murgap, which are more populated, agricultural and have independent irrigation systems.

Govshutbent is also one of the famous dams built on Murgap River. A. Lyapin, noting that late medieval historians did not leave any records about this dam, assumes that it was built in the 16th century. It's mentioned in Muhammad Kazim in the first reliable written source as Janalybent, according to Tayirov's story, which he heard from the elderly, in the 19th century, this dam collapsed eight times. In the place of Janalybend, during Goshut Khan's reign, a stronger dam than Nowhana was built. He is called Goshutbent. Such dams always required supervision. According to W. Masalsky, who wrote in 1892 the dam's supervisors consisted of 300 people. Thousands of people were involved in strengthening the dam so that strong floods would not collapse it. Then the wood is layered. He managed to withstand the flood waters. The power of water in Soltanbent was two and a half times higher than in Goshutbent. But Goshutbent irrigated many fields.

Those who live at the head of the dam and are busy strengthening and controlling it are called "panjuwar". Near Govshutbend there was a special village of "Penjuwars" consisting of two hundred households. Panjuwarlar, "tarazbanlar" and miraps monitored the irrigation facilities and the proper functioning of this system [11, p. 88]. Over time, Govshutbent has grown stronger and has become a major institution. The people who built it were craftsmen from among the people and created a wonderful monument of folk experience.

Our ancestors built the dams, which were giant waterworks, in a pot, square, ornate shape. Both sides of the bridge were stretched "sowma".

This helped the water to filter through and keep the grain intact. The practice of dam construction has not changed over the centuries. No one has developed such a perfect practice as the Turkmens' experience of building a dam along the Murgap River. They used the same methods as they built dams in the Middle Ages until the end of the 19th century. Only at the end of the 19th century, a number of stone and

baked brick embankments were built according to Russian engineering. During the construction of Soltanbent, Gowshutbent and other dams downstream of Murgab, the Turkmens have always narrowed both sides of the river by throwing some wooden plant materials there. They rolled it out of the garbage collected in huge quantities from the banks of the river, dragged it to the river bank with heavy sticks made of reeds, and threw it at the far side of the house. There were special craftsmen on both sides of the river, who mainly weaved and rolled from plant which called "yylgyn", weight of that thing is about two thousand "harwar" and length nearly thirty steps long. Many people helped them. It took hundreds of people to put each finished log into the river basin.

Dam construction works started mostly in autumn. Because in the autumn and winter months the water level of the river decreased and its flow decreased. Each log placed at the bottom of the river was fastened with hundreds of long pegs made of logs (noga). Then they were pressed, examined and fixed. Thus, they pushed huge logs into the river bank from both sides, tied them to stakes, and then tightened them. Finally, they concentrated all their efforts to block the rivers and placed a double log called a log in the middle of it. In order not to destroy the logs placed on both sides of the river bank during the flood, they put the so-called "double logs" (peshnogala) which were more diligently woven in front of them, horizontally. These served as an outer layer of long-slung logs, absorbing the weight of the water from its shock front. In this way, they waited for the river to be full and poured its water into the wells that had been dug in advance. Despite the different information about the size of the dams built in this way, it can be confirmed that they were huge irrigation facilities in their time, requiring the concentration of thousands of manpower [11, p. 87].

At the end of the 19th century and the beginning of the 20th century one farmer from each village was hired for ninety days to repair Gaziklybend in Yoloten. The work of fixing and repairing lasted forty-five days in the spring and forty-five days in the fall. At the expense of the labourers sent by the village kethuda or mirab, the workers changed their shifts for fifteen days. In addition to the labor force, the village kethuda had to hire five to ten camels to transport the necessary resources [10, p. 72].

Akjabent is built near the confluence of Garajar bn Arykjar in Mary regions. After 1873 the Egriguzer dam was built near the present city of Mary. B.A. Fedorovich and A.S. Kes note that it is necessary to be a dam here. Turkmens initially wanted to rebuild Soltanbend in Yoloten etrap, but when it failed, they built this dam. The site served as a dam and the centre of the Murgap Valley, where it was used as a water distribution facility downstream of the river. At that time, when the water of the river swelled, one of the old branches of Murgab was used as a gift, which was named after Nazli's River. This ravine was later levelled and turned into a farming area. A customs house was set up here, where customs were collected from caravans going to and from Iran, Afghanistan, Iraq and Damascus. From this dam originates the Karayap, Keseryap, Peshenali yaps, which supply water to farmers' associations of Mary, Vekilbazar, Sakarchage regions. Today, it is used as the main dam that distributes the water of the Garagum River. In 1883 M. Alihanov names Charlakbent and Torgaybent dams here [1, p. 26]. Each of them gave rise to canals that supplied water to the fields north of Mary.

In 1886 Soltanbent Reservoir was rebuilt. Hanyap and Soltanyap families are descended from him. In 1954-1977 a hydroelectric station operated in Soltanbent. During the 20th century, dam construction continued along the Murgap River. In the 30s of the 20th century Gyzylbent was built at the foot of the river, 25 km from Mary, and Kullibent was also built on one of the lower branches of Murgab. In 1934-1941 a reservoir was built near Dashkopri village. In 1958-1960 the construction of the Saryyazy reservoir continues [13, p. 49]. The reserve water stored in these reservoirs ensured abundant irrigation of agricultural fields.

Even today, reservoirs built along the Murgap River make a significant contribution to the irrigation of agricultural fields, the development of fisheries, and the preservation of the diversity of Turkmen nature.

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Data about the author:

Hommyyev Toyly Babageldyevich – senior lecturer of Turkmenistan History Department, Turkmen State University named after Magtymguly (Ashgabat, Turkmenistan).

Сведения об авторе:

Хоммыев Тойлы Бабагельдыевич – старший преподаватель кафедры истории Туркменистана Туркменского государственного университета имени Махтумкули (Ашхабад, Туркменистан).

E-mail: hommyyewt@mail.ru.