NARGIZA P. KAMOLOVA

HISTORY OF AGRICULTURAL TRADITIONS IN THE KHOREZM OASIS

(XIX CENTURY-EARLY XX CENTURIES)

MONOGRAPHIC BOOK

atlas akademi

History of Agricultural Traditions in The Khorezm Oasis
(XIX Century-Early XX Centuries)

Nargiza P. Kamolova

Chief Editors:
Assoc. Prof. Pulat KAMOLOV
Professor Abdullayev Utkir Ismailovich
Assoc.Prof. Jumaniyozova Mamlakat Tojiyevna

Reviwer:
Assoc. Prof. Zuhal KARAKAYACI

Translated by:
Ziyoyev Sherzod Erkinovich

ISBN 978-625-8101-53-9
© Ekim 2023

SERTİFİKA NO: 49704

Kapak Tasarım: **Atlas Akademi**
Baskı Öncesi Hazırlık: **Mehmet ATEŞ –** mehmetates42@gmail.com

Baskı ve Cilt

KÜTÜPHANE BİLGİ KARTI

Anahtar Kelimeler:

Nergiza,
P.Kamolova

atlas akademi

Akademi Mh. Yeni İstanbul Cd.
No: 317/7 Selçuklu/ KONYA
Tel: 0332 241 30 59
www.atlasakademiyayin.com

NARGIZA P. KAMOLOVA

Nargiza Pulatbaevna Kamalova was born on May 17, 1989 in the city of Andijan, Andijan region of the Republic of Uzbekistan. In 2009-2013, she studied at the history faculty of Urganch State University as a bachelor, and in 2013-2015, she studied at the master's level. She is the author of about 40 scientific works, a participant of a number of international and republican conferences. N.P.Kamalova has a Doctor of Philosophy (PhD) degree in history, majoring in "History of Uzbekistan". In 2022, she published a monograph entitled "History of Agricultural Traditions in Khorazm Oasis (19 Century - Beginning of 20 Centuries)".

PhD. in 2017-2019, N.P.Kamolova worked as a junior researcher at the Khorezm Ma'mun Academy of the Academy of Sciences of the Republic of Uzbekistan under the code grant FA-F-1-008, and in 2021-2022 as a history teacher at the "History" department of Urganch State University.

Currently, she is working as an associate professor of the "History" department of Ma'mun University Non-Government Higher Education Institution.

.

CONTENT

INTRODUCTION

As a result of the rapid growth of the world population by the beginning of the 21st Century, humanity is faced with global problems such as environmental catastrophies, food shortages, and hunger. The demand for agricultural products of the population of the countries of the world is increasing tremendously. These problems, in turn, require the rational use of natural resources, primarily land, and the study of ancient agricultural areas for analysing existing practices. In the developed countries and regions of the world, such as the USA, Europe, Russia, China, Japan, famous schools in the field of agriculture have been formed, and huge scientific projects are being implemented in this regard (Green Agro, Rumelko-Agro and etc.). The scope of such projects also covered the Central Asian region. Today, the results of many researches in the field of social and humanitarian sciences are used in the implementation of these projects. It is very difficult to imagine the history of agriculture in Central Asia without the irrigation agriculture of Khorezm. Therefore, the study of the history of traditional agriculture of the Khorezm oasis is becoming more and more important in the world and regional historiography.

Since the first years of independence, various studies have been carried out on the history of the Khorezm oasis in modern Uzbekistan. In particular, the history of Khorezm statehood, the administrative management system of the region, documents of the foundation and khanate, political and ethnic history were studied. However, the problem of the history of traditional farming of Khorezm has not been fully explored. The ecological processes that took place in the last centuries left their impact on the lives of the inhabitants of the oasis. In particular, the drying up of the Aral Sea threatens the agricultural

activities of the region's inhabitants. The minimizing of this sea, which is important for the Khorezm region, has led to the salinization of the cultivated areas and the decrease in soil fertility. Studying and eliminating the main factors of its origin has become a problem that must be solved by scientists in social sciences and humanities. This is evidenced by the fact that a lot of research has been conducted in this way during the last decades.

The economic prosperity of the Khiva Khanate depended on the effective use of traditional methods of farming in this region and the establishment of irrigation systems on a very large scale. After all, a sharp increase in productivity and efficiency in agriculture is the factor that gives the fastest results in reducing poverty and increasing the incomes of rural population. Studying the history of agricultural traditions of the Khorezm oasis shows the importance of a scientific approach to the history of irrigated agriculture in this region.

CHAPTER I
SPESIFIC FEATURES OF THE KHIVA KHANATE AGRICULTURE IN THE 19th AND THE BEGINNING OF THE 20th CENTURIES

1.1. Forms of Land Ownership in the Khiva Khanate and Their Uniqueness

Due to the fact that the land was considered the main source of income for the population in the Khiva Khanate, during this period specific procedures for dealing with the land and any actions related to it were established. Especially in the period of which we are studying, the issues related to land and farming have risen to the level of state policy. In order to have certain ideas about the socio-economic life of the Khanate of Khiva, first of all, it is necessary to determine the order of land ownership in this area. The following forms of land ownership relations existed in the Khiva Khanate:

1. Kingdom (state) lands;
2. Property (private property) lands;
3. Forms of Waqf property;
4. Community land (*existed until the beginning of the 19th Century*).

The royal or state land ownership consisted of the total land area in the Khiva Khanate in the areas of forests, fields, sands, and lakes. Authors stated that the state land was 86,000 tanobs in the Late 19th and Early 20th Centuries [Nurzhanov K., Khozhaniyozov Gh. 2004:85]. Each khan who came to the top of the state controlled the order of ownership of these royal lands (*distribution of land property, taxation*) and by drawing water networks to the undeveloped parts of the state lands and releasing water to new lands, the khan, the khan's family and his close relatives

also own the properties. According to the information provided by K. Nurzhanov and G. Khozhaniyozov, before the Russian invasion, the Khanate had a total of 1 million people. There were 681 thousand desyatinas (*Desyatina is a measure of the area, equal to 2400 square meters in the 18th Century, 3200 square meters from the Beginning of the 19th Century*). Of this, 324,000 tenths of land were appropriated and planted, 224,000 desyatinas were considered as waqf lands for residents and mosques, and 100,000 desyatinas were the private property of the khan [Nurzhonov K., Khozhaniyozov G. 2004: 86]. The remaining part was considered undeveloped and neglected land.

Although many authors have carried out scientific research on land ownership relations in the Khiva Khanate, the issues of state land in the Khanate, the order of land ownership in the Khan's state land, and the classification of individual property lands of the Khan have not been covered in detail. For example, one of these authors, M. Sazanova, in her scientific research on land relations in the Khiva Khanate in the 19th century, provided information about land relations based on ethnographic and partially archival materials. Sazonova M., 1945] and allowed inaccuracies in the classification of state lands and property lands. Although the author rightly points out that there are forms of state land, private land and waqf land in land ownership relations in the country, but the relations of state land ownership and private land ownership are not explained in detail. N.N. Muravev, while analyzing the order of land ownership in the territory of the khanate, he also notes that the real owner of the total land in the Khiva Khanate is the Khan himself [Murav'yev N.N. 1822: 80-81]. Even the lands of the Inoks in the territory of the khanate, which have been in possession since ancient times, are actually considered the property of the khan. It also creates a false conclusion that the total land area in the state (*property land, waqf land and communal land*) is united under the Khan. After all, the khan who came to the top of the state could own not the total land available in the state, but the land in undeveloped areas that were not at the disposal

of large feudal lords and waqf lands. Because all the cultivated areas in the center of the country and at the beginnings of large irrigation networks were already in the hands of large zamindars and mutawallis. Nevertheless, it is known that in some cases, the khans sought to find ways and sometimes succeeded in acquiring large irrigated lands and gardens.

According to I. Magidovich, royal (state) lands were divided into personal royal and special lands, and property was divided into labeled property and special property types. The author considered that the types of private property, registered property and equestrian land form the category of state land and confused the forms of state and property land ownership in the Khanate. As a result of this, the existing property lands in the state are included in the category of state lands, and at the same time, the state itself is a big tenant, and the owners of the property are the tenants who rent the land. Because the estates, equestrian lands and labeled lands constituted the property lands of the Khanate. The real owners of these properties were not the state, but large feudal lords, who fully enjoyed all forms of ownership *(ownership, use and possessing of land*) over these lands, and it was considered hereditary property. The state could only impose taxes and certain obligations on the owners of this property.

During the years of Uzbekistan's independence, a number of works have been carried out on this issue. In particular, in the works of an Uzbek scholar Ulfat Abdurasulov's even if it was mentioned that "land relations in the Khiva Khanate in the second half of the 18th century – the first quarter of the 19th Century", state lands in the Khiva Khanate, private lands and endowment lands [Abdurasulov, 2008: 29] despite being widely touched upon, there is no data on community lands, community land ownership order, which exists in all parts of the Khanate except these forms of land. However, in the Khiva Khanate, community lands existed until the 19th Century, and these lands were considered the lands of the Khanate population used in general order.

The community lands were later liquidated and incorporated into the property lands as a result of their appropriation by local large landowners.

The royal lands are composed of lands that were appropriated later than other land forms, and the size of these lands increased by the 19th Century and mainly existed in the Western part of the oasis in the vicinity of Ko'hna Urganch, Qilichniyozboy, and Hazorasp in the Southern part [Magidovich I., 1926: 65]. These lands were cultivated not by the landowners themselves, but by bewatan bat-raks and laborers, who did not have the right to own the land, but were considered to have the right to use this land temporarily. If a person farming on royal land died, the right to use this land was transferred to his children and they continued to farm there. Although the person who farmed in the royal lands was not considered the real owner of these lands, he was considered the full owner of the crops grown there and the buildings built by him.

Therefore, all landless peasants in the Khiva Khanate were called tenants, slaves or laborers. Depending on the type of leased land, they are divided into the following:

1. Bevatans – persons who rent state or royal lands. [Shkapski O., 1900: 104].

2. Koranda – persons who rent private or property lands.

3. Waqfkor – persons working for rent on waqf lands.

According to M. Yuldashev [Yuldashev M., 1959: 173], Bevatans rented an average of 5-7 acres of land and paid "Salghut" of 1 gold for every 5 acres of land. Due to the small amount of land at the disposal of the state, the leased land of the bevatans was a very small share in the Khanate.

Farmers working on state land paid "dayak" in 2 different ways. They were taxed in the amount of 1/5 of the harvest for land irrigated without irrigation, and in the amount of 1/10 of the harvest for land irrigated by irrigation [Magidovich I., 1926:65].

By the 19th Century, the private lands of the khans of Khiva were increasing. Khans of Khiva were considered the largest feudal landowners of the country at the same time. Because they had a number of private lands at their disposal. The best lands and gardens in the territory of the Khanate were in the hands of the Khan and his descendants. According to Q. Munirov's analysis, the labor of landless peasants, forcibly displaced people and slaves was widely used in these lands [Munirov Q., 1960:11].

M. Yuldashev writes in his research that the khans were the owners of very large private or royal lands and they were the first feudal lords of the state [Yuldashev M., 1959:151]. Of course, the condition of the khans owning large areas of land is another form of large feudal land ownership. Therefore, the khans controlled the state lands and the taxes that came from them, and they also had at their disposal private lands representing their personal interests. In particular, Ogahi writes that in 1846-1847 (*1263 Hijri*), Muhammad Aminkhan dug a canal (channel) on the right side of the Sharqirovik river in order to release water to areas suitable for farming in the areas of Kuhna Urganch and Kuhna Vazir [Ogahi, 1980:21].

Water was released to these lands, favorable conditions were created for farming, and these cultivated areas were transferred to the Khan. In his writings, Ogahi mentioned the properties of Khiva khans in which cities, but did not provide any information about the size of these properties. The land owned by Khiva khans consisted mainly of fertile lands of the khanate territory suitable for farming. The private lands of the khans were the majority in the regions on the right side of the Amudarya. The lands of Shura Khan and Sheikh Abbas Vali were considered state lands until 1865-1866, that is, until the time of Said Muhammad Khan [Yuldashev M., 1959:195]. Later, these lands were transferred to the possession of Said Muhammad Khan. The lands where the farmers worked in Akmasjid, Kungirot, Dovkara, and Shorakhan regions were the private property of the khans, and the

accounts of the grain received from those lands were controlled by the persons who managed these areas, that is, the mushrifs. Grain imports and exports of the Khanate of Khiva during the time of Muhammad Amin Khan [UzNA. Fund no.125. List 2, work no.400-410] in the notebook, the following is mentioned, among others, from the estates in Shorokhan region in 1848 it was recorded that the harvest was obtained "*one thousand and nine bushels of wheat, two thousand seven hundred and sixty-five bushels of sesame, one thousand two hundred and eleven bushels of mash, one hundred and five bushels* of guvocha, three hundred and five bushels[1] of millet, and thirty-two bushels of flax" [Zhalilov O., 1986:41].

Of course, each new khan who came to the throne tried to own the best part of the undeveloped land, and they mostly transferred water to the undeveloped land in the remote areas of the khanate by digging new water lines and transferred these cultivated areas to their disposal. After all, most of the lands near the capital were in the hands of large zamindars of this land. Therefore, the gardens and cultivated lands owned by the khan in the country were not included in the state land, but were considered his private property. These lands were considered a separate property of the khan, irrigated by many canals, and many slaves were used in these lands. These slaves consisted mainly of captives driven from Karakalpak villages.

Property lands (*Mulki-hurri-khalis*) are divided into 3 types and taxed depending on the type: 1) special property (*ata-i mulk*), 2) labeled property, 3) equestrian land.

Atoyi property was inherited property and they were lands belonging to relatives of the khan and high state officials, who paid a small amount of tax for their husband, and in some places they were not taxed at all [Shkapski O., 93, 96, 107]. Owners of special property have a special document confirming ownership of this land and differed from royal lands in this respect. Legally, special property did not differ much

[1] Bushel – is a measure of capacity equal to 8 gallons (equivalent to 36.4 litres), used for corn, fruit, liquids, etc.

from labeled property, because the owners of this type of land also had a special document confirming the right of ownership of the land issued by the khan. Researcher O. Zhalilov writes that the lands belonging to the Khan's relatives, high-ranking officials, certain categories of priests, and cavalrymen (*soldiers with horses*) who served the Khan had a label issued by the khan confirming that the owners of these lands were also exempted from taxes [Zhalilov O., 1986:20].

The researcher calls the persons with such a label "label holders", but he also did not explain in detail the order of ownership of special property and property with a label and their main difference. After all, special lands were considered to be lands given by the khan to relatives of the khan, high officials and priests in exchange for certain services, and these lands were exempted from taxes during the service of the owner to the khan. When he was not in the service of the Khan, he was taxed among other properties. After all, taxes were one of the country's main sources of income during this period. Titled properties were lands that were not given by the khan, but were given to the owners for a certain amount of money. In some cases, due to the high price of labels, residents preferred not to buy a land ownership document, but to rent land and pay taxes by registering as ordinary taxpayers for the use of land [Magidovich I., 1926: 66]. In this case, the lands of land users are not included in the category of labeled property.

Therefore, the difference between freehold and title ownership is determined by the acquisition and taxation of land ownership. Owners of special estates did not pay land tax (*salghit, salghut-kesma*), but house or yard tax to the khan's treasury. This tax was not based on the owner's land, but on the amount of his property. Of course, this is considered a form of income tax. According to the information given by O. Shkapski, the owners of special property in the khanate were divided into 3 categories: 1) adno (lower), 2) avsat (middle), 3) ala (high) [Shkapski O., 1900:108].

Lower class landowners paid a tax of 2 gold per yard, regardless of how much land they owned. Those belonging to the middle class paid a

tax of 4 gold, and representatives of the upper class paid a tax of 6 gold. Of course, paying taxes in this form in the Khiva Khanate has been used for nearly 100 years. After all, in this way, every 20 years, by order of the khan, information was collected about the condition of the owners of special property, and on the basis of this information, each family rose from the lower class to the middle or upper class [Shkapski O., 1900: 109; Magidovich I., 1926: 66]. The form of special property is widespread in Hazorasp, Khiva, Bogot, Khanka, Kat, Gurlan, Manghit, Kipchak, Khozhayli, Qunghirot, Qiyot, Shavat, Ghazavot, Qo'shkopir regions of the Khanate [Magidovich I., 1926: 66]. Therefore, the owners of special property were considered to be the native residents of Khorazm. But M. Yoldashev has a different approach to this issue. According to his writings, in the middle of the 19th Century, land ownership in the Khiva Khanate was approximately as follows:

1. Direct land owners - this category includes adno and avsat farmers, their total land area is 64,000 tanobs.

2. Owners – this category included excellent landowners, whose total land area was 70,000 tanobs.

3. There are lands belonging to the state and foundation, the total of which is 250,000 tanobs.

A special feature of properties with a label is that the owner of the property has full ownership of the land until the end of his life through a special label issued by the khan, and after his death, the ownership is passed on to his heirs. According to O. Shkapski's "Essays on Amudarya", over time, on the basis of the order of the Khans of Khiva, some privileged rights were given to the peasants who use the royal lands, and some landowners were given a special document, called a "label", indicating the right to use the land. This document legally strengthened the property rights of land owners in the use of state land, and these lands are called "labeled property". Although the right to use the labels given by the Khan is lifelong, but in case of a change of the Khan, these labels are also replaced with new ones. This was done in

two different ways, i.e. the ruler stamped his personal seal over the old one, or the new ruler wrote a new one based on the old one. According to the information of I. Magidovich, the land in the form of a label was in the Gurlan, Ambar-Manak, Ilyali, Manghit, Kipchak and Khozhayli regions of the khanate. According to O. Shkapski, the labeled properties mainly consisted of lands in the eastern part of the khanate, i.e. in the vicinity of Toshovuz, Anbar-Manak, Ilyali, Qilichniyozboy, Porsu and Kuhna Urganch. Land tax was granted to these landowners by the khan [Magidovich I., 1926: 65]. O. Shkapski wrote that the total amount of labeled lands distributed to peasants by the order of Khan was equal to 400 tanobs [Shkapski O., 1900: 104]. However, a single farmer in the khanate could not cultivate more than 5 tons of land by himself. So, 80 people had to work on 400 acres of land. Of course, it is clear from this that the majority of cultivated land in the khanate was in the hands of representatives of the upper class, and many tenants worked on their land. In the work titled "Our Neighbors in Central Asia. Khiva and Turkmenia" [Nashi sosedi v' Sredney Azii. Khiva i Turkmeniya, 1873:120] it is written that arable land is equal to 4 tanobs (*Tanab – is 900 square meters of length*) per person. Of course, this is the approximate state of all cultivated land in the country, when it is distributed equally to the population of the Khanate. Such land includes arable and non-arable land. After all, the upper-class landowners owned 8-10 tons of land, but the land owned by the poor in the khanate was less than 1 tanon. It was too expensive for a common farmer to get a label from a khan, so they preferred to register as a tax payer rather than get a label. Therefore, the difference between freehold and title ownership is determined by the acquisition and taxation of land ownership. Of course, the lands of the owners who did not have the title of Khan were taxed in the same way as the properties with the title. Such peasants were called "Mulkdars", and their land was included in the number of other properties that did not have the title of khan. By 1873, the use of slave labor was effective in cultivating tabulated land. As a result, they began to rent out the labeled land in return for paying half of the harvest as tax. Those who use land in this way are called half-breeders.

O. Koshzhanov in his dissertation on the history of agrarian relations in the Khiva Khanate in the End of the 19th-Beginning of the 20th Centuries distinguishes the property lands in the Khiva Khanate into special property, labeled property and ordinary property forms and writes that labeled property and ordinary property forms are not considered private property, but state or royal property. and the author thus contradicts the opinion expressed by himself. He confused private lands and state lands and made a mistake in dividing the khanate's royal and private lands into clear categories and clarifying their content. In the Khiva Khanate, as O. Koshzhanov pointed out, he could not explain in detail the land at whose disposal was included in the form of ordinary property. He considered the land of the people who worked on the land of the landowners recorded in the tax books to be ordinary property. But the peasants who worked for the large landowners in the khanate were tenants, who did not have ownership rights to the land, but only owned a certain part of the cultivated crop. Tenants on state lands, like tenants on the lands of large landowners, had no ownership rights to the land, but only owned the produce from the land and the buildings built by them. Therefore, the landless tenants had no ownership rights to the lands of the large landowners or to the state lands, and the simple form of ownership presented by O. Kushzhanov did not exist in the khanate at all.

"Equestrian lands" also existed in Khiva Khanate. One of the main reasons for the name of equestrian lands is that these lands were distributed to the Turkmens, and for the use of these lands, during the war, the owner of every 30 tanabs (5 desyatinas) of the land had to serve the Khan with one armed horse, and in this way the Khan was able to keep the Turkmens under his influence. tried. No type of tax was levied on equestrian landowners. Over time, the name of the equestrian lands was preserved in this form.

By the 19th Century, after the conquest of the territory of the Khiva Khanate by the Russian Empire, the Khanate of Khiva no longer needed

horsemen composed of Turkmens, and the Turkmens, who were owners of equestrian lands, began to be taxed according to their land, i.e. salgut cut. This type of tax was paid by the Turkmen who owned the land on the basis of property rights and were not in the service of the Khan. The remaining landless Turkmens were given land from state lands, and "Dayak" was taken from them on a general basis. All residents of the khanate were taxed on a per capita basis. Only the Sayyids, Khozhas, or people who were considered descendants of the Prophet, who were given a label by the Khan, were exempted from all taxes. This form of land ownership in the Khiva Khanate was closer to the form of land ownership known as "tanho" that arose in other regions of Central Asia in the 16th Century in terms of land area and other aspects. In the territory of Bukhara, lands donated by khans to military personnel and other privileged residents of the country were called "Tanho" [Kushzhanov O., Polvonov N., 2007:132].

O. Zhalilov, while analyzing the existing riding lands in the khanate, wrote that they were part of the royal lands and that these lands were temporarily given to the Turkmen by the khan for a certain period of time. Although he correctly interpreted that the equestrian lands belonged to the Turkmen cavalrymen, he made a slight mistake, considering that these lands were given for temporary use by the khan. After all, these lands were not part of the royal lands, but were considered property lands, and the right of ownership was passed down from generation to generation.

People who leased private land and engaged in farming paid taxes to the state instead of the owner, while fulfilling the lease conditions of the owner of the property. During the excavation, the family was also required to provide one worker. The serfs, unable to fulfill obligations and pay taxes, became slaves of the owner for life. So, the difference between tenants and tenants is that a tenant is a person who has labor tools or seeds to work the land on rent, while a tenant is a person who has neither labor tools nor seeds. The peasants worked on the land by

renting tools and seeds for cultivating the land from the owner and had to pay rent for the land, tools and seeds.

The ordinary people of the Khiva Khanate were in debt due to the burden of taxes and obligations, and the tenants became serfs, and the serfs became slaves for life. By the 19th Century, especially, the number of landless slaves increased rapidly. In particular, by the time of Muhammad Rahim Khan, the process of seizing a small number of lands belonging to the lower classes by large landowners in the khanate on the basis of violence intensified. This was the reason for the increase of protests by landless peasants in the 18th and 19th Centuries. This situation continued later. In particular, in the years 1900-1913, Omongeldi, one of the officials of Khiva khans, had more than 2,000 tanabs of land, and Matmurod devonbeg had more than 2-2,500 tanabs of cultivated land [Kushzhanov O., Polvonov N., 2007:138]. The majority of the country's total arable land is owned by the large landowners and officials of the khanate, and they make up 5% of the population, 30% are peasant farms owning from half an acre to 3 acre of land, and 11% are landless people [Kushzhanov O., Polvonov N., 2007:138].

In Khiva Khanate until 1873, the largest zamindars after the khan were considered as amirs ul-umaros, and the cities of Hazorasp, Pitnak, Shurakhan of the Khanate and all the rural lands in their surroundings came under their control [Kun A.L., 1874].

Khans often gifted their estates to their officials for their loyal service. In particular, the sources mention that in 1861, Mehtar Qushbegi, a major official of the Uyghur district, and Niyozbi from Karakalpak were given 40 tanabs of land.

According to the written information in the documents of the Khiva Khanate period, it is noted that the Khiva khans sold state lands and their own property lands to large feudal lords for a large amount of money and it was spent for the needs of the army [Ichan Kal'a Fund, Khorazm Region of Uzbekistan. Waqf land documents. P.Q.1375; P.Q.1385].

By the beginning of the 20th Century, in the Khanate of Khiva, the khans began to lease several hundred and thousands of tanobs of state land to feudal officials for a long period of time. For example, in 1912, 30,000 acres of land were leased to Safaryants for a long term, and on September 16, 1910 there were leased 40,000 acres of vacant land to Prince P.P. Gatsil for a period of 99 years. So, by the beginning of the 20th Century, Khiva khans introduced the procedure of renting land from the territory of the Khanate to local officials as well as to foreign officials.

In the Khanate of Khiva, there were waqf (*Waqf – is a property allocated by the state or certain individuals for good purposes in accordance with Muslim laws*. [Dusimov Z., 1985: 31]) lands also existed. Allah is meant as the real owner of these lands, and they were lands belonging to mosques and madrasahs. In fact, the ownership of these lands belongs to the mutawallis, and these lands are also inherited from generation to generation. Khiva khans, in addition to donating large areas of land for waqf, annually donated grain crops for mosques and madrasas at the expense of the state [Vamberi A., 1868: 155]. In this regard, we provide the following information:

1. Twelve thousand batmans of grain were given to Madaminkhan madrasa every year, that is, three thousand batmans were given to 5 akhuns (madrassah teachers), two hundred batmans to 1 muazzin, and a share of one tenth of the total income to 2 mutawallis. The rest was distributed among madrassa students. They are divided into classes. Sixty Batmans for 1st class, thirty Batmans for 2nd class, fifteen Batmans for 3rd class.

2. Fifty batmans to Allahqulikhan madrassah;

3. Fifty bushels of grain were allocated to Kutlug Murad inog madrassah.

Tenants who farm on waqf lands, as mentioned above, are called waqfkors, and they are not considered the main producers in the khanate. In one year, the amount of tax collected from the existing waqfs in the country was 576 gold salgut. Because the waqf landowners did

not rent out their land, but preferred to use the peasants who became slaves and lost their homes, they hired the peasants, and the collected grain harvest remained at the disposal of the mutawallis. But the waqf owners only leased the land areas that were difficult to work. The waqf and estate lands were less rented than the royal lands, the reason being that the owners of these properties preferred to use the labor of laborers, who were almost free, on their lands rather than tenants. Because the peasants worked in these lands, they were satisfied with getting food and clothes, not a part of the harvest.

The number of waqf lands increased due to the purchase of the lands of ruined households, in addition to the lands donated by the khans to the mutawallis. For example, in the document No.117, 1268 included in the catalog of Khiva judicial documents, it is written that "the money paid by the land buyer is from the endowment of the mosque he built in Dust-Vali" [Urunbayev A., Horikawa T., 200: 117,1268].

In the Khanate of Khiva, communal lands existed until the 19th Century. The big zamindars cleaned the communal property of trees, appropriated the pastures, dug new canals there, and forcibly appropriated the communal property. They used the Muslim laws as the basis of which it is believed that the persons who dug canals in new lands and turned these lands into arable fields in the process of appropriating these lands have the right to own these lands. Community leaders entered into partnership agreements with farmers who owned little land but had no seeds to plant, putting them into debt and thus taking over the land of the small land population. During the development of collective lands, this land was distributed among the population, and great attention was paid to the ability of farms to plant the land [Zhalilov O., 1986: 32], and everyone, during the distribution of collective lands, all family members who are fit to work on the land, tools, those who participated with their flocks, working animals, and sowing seeds. Naturally, large areas of arable land were at the disposal of large zamindars due to the high possibility of working the land.

The distribution of communal lands was carried out with the permission of the state, and a document was written for the distributed land, and the newly appropriated lands were transferred to the state register for taxation.

Even after the Khanate of Khiva was colonized by Tsarist Russia, there were no drastic changes in land ownership. Three different forms of land ownership, i.e. state land ownership, private land ownership, and foundation land ownership, have been preserved.

In the process of studying the land ownership and agrarian relations of the Khanate, one of the main issues is to study and explain how the land fund of the Khiva Khanate is distributed in this period and the methods of land use by different categories of landowners. In the course of a careful study of the materials, the following conceptions of land ownership in the Khiva Khanate, which existed until that time, were rejected. In particular, the opinion that most of the total land (*undeveloped and developed*) and arable land in the territory of the Khiva Khanate belonged to the state and that the Khan himself was the sole owner of them turned out to be unfounded.

In the Khanate of Khiva, one-tenth of the arable land belonged to small landowners, one-seventh to the state, and more than half to large landowners. During the internal and external wars of the 18th and 19th Centuries, the lands under the control of the large feudal lords of the Khiva Khanate expanded due to the acquisition of new lands by forcibly seizing the lands of the population and building large irrigation networks.

In the Khanate, land ownership consisted of state or royal lands, property lands, waqf lands, and communal lands until the beginning of the 19th Century. In this matter, it can be seen that the people of Khiva Khanate continued the traditions of ancient and medieval times and introduced some practices based on the requirements of their time. This is confirmed by the many occurrences of Arabic, Turkic and Turko-Mongolian words and terms along with ancient Khorazmian terms

related to land properties, property ownership, land use, harvest and their distribution during the Khanate period.

By the beginning of the 19th Century, as a result of the complete appropriation of collective land by large landowners, collective land became part of the property land and the form of collective land was completely abolished. At the same time, as a result of the nomadic Uzbek, Turkmen, Karakalpak clans, who once had a nomadic herding lifestyle, switched to a sedentary lifestyle and began to engage in farming, the need for arable and fertile land has increased. The resolution of the problems related to the settlement of these clans and tribes reached the level of the government, and in return for their services in the military affairs of the Khanate, they were allocated land properties suitable for farming as a privilege.

1.2. Types of Crops in Agriculture of the Khiva Khanate and Their Role in the Development of the Khanate

Despite the lack of fertile land in Khiva Khanate and the backwardness of tillage tools, irrigated agriculture based on artificial irrigation is well developed in this area, and many types of crops are grown by farmers. This is also confirmed by the fossil materials found during the archaeological excavations in the Khorezm region. Among them are the remains of melons, watermelon seeds, peaches, apricot kernels and cotton bolls found in Janpiq Kal'a (*Yonpiq Castle*) [Kydyrniyazov M., 1989:43]. Cultivation of all types of crops and obtaining abundant harvests from them was widely practiced in Khiva Khanate, and each of them had its own planting technology. Below we will focus on these.

Farmers tilled the land ten times, and in some cases more, to plant wheat. In order to increase the productivity of the land where wheat seeds are planted, 800 cartloads of manure were sprinkled on one hectare of land and watered up to 5 times during tillage. According to the information given by M. Ivanin, wheat was planted from Pitnak region to Shahabad [Ivanin M., 1873: 23]. In the Khanate of Khiva, wheat

was planted in 2 seasons of the year, i.e. winter and spring, depending on the variety. According to O.Shkapski, five types of wheat were grown in Khiva Khanate. Of these, 3 types are winter varieties, and the remaining two are spring varieties [Shkapski O., 1900: 31; 176].

The varieties of winter wheat such types as "Tukmak bash", "Zhaidari", and "Bukhari" are planted. The seeds of the winter variety were sown at the end of September [Shkapski O., 1900: 81]. 60-100 kg of seeds were used to plant one hectare of land. This wheat variety was watered in the spring after sprouting. By autumn, the watering process is stopped. The crop ripened at the end of June, and its harvesting was carried out one or one and half weeks before the harvest of the spring wheat variety. It yielded up to 60 poods (*a unit of weight equal to 16 kg*). After harvesting the winter wheat crop, melons, millet, and oats (*for livestock feed*) were planted in the vacant fields as repeated crops [Ivanin M., 1873: 23].

Spring wheat such varieties as "oq yazliq", "qizil yazliq" were planted and the seeds were sown in March [Shkapski O., 1900: 81]. The seedling was watered one time after reaching the length of four arshin (*unit of measurement of length. The average value is equal to 71.12 sm*) and it was watered 3-4 times until the wheat ripened. 100 pounds of grain was obtained from one desyatina of the spring wheat variety.

Of course, grain, millet, sesame, and sorghum grown in the Khiva Khanate were sold at a much higher price to the neighboring nations. In particular, in order to sell the total amount of grain on his account to the Turkmens at a high price, he banned the sale of grain to the local population. According to Murav'yev's writings, the khan imposed the death penalty on farmers who violated the established laws on grain trade [Murav'yev N., 1822: 80-81].

Oatmeal was considered one of the favorite foods of the Khiva people. The length of corn is 3 to 5 meters depending on the variety. Oats are sown in May on well-cultivated plots of land. Farmers sprinkled 1,000 cartloads of sand manure on one hectare of land where

corn was planted, cultivated fields were plowed and irrigated up to 5-6 times. After the tillage process was completed, 1,000 cartloads of saline soil were sprinkled on each hectare of land. Corn was planted in May and June, and irrigation started in June after the sprouts were half a bushel. Watered up to 4-6 times during the vegetation period. Farmers start harvesting sorghum in October because when the weather turns cold, sorghum seeds begin to shed in the cold. Oasis farmers used a scythe to harvest the upper part of the corn or corn stalks (*which is called as "Rovak"*). They kept the stem on the roofs of the houses for the purpose of fodder for livestock. Since corn stalks are very good food, Khiva people preferred to plant them in large areas and harvested up to 2 or 8 tons of crops from its stalks. In most cases, sorghum was planted as a second crop on the vacant land after the wheat crop was harvested. In the years when the corn was not ripe enough, its grains were also used as fodder for cattle. In particular, in 1891, all corn grown in the khanate was used instead of fodder for livestock [Shkapski O., 1900: 32]. 60-100 kg of grain was sown on one hectare (*an area equal to a square area with sides of 100 m*) and more than 2 or 5 tons were harvested from each hectare of land, depending on the variety. This type of crop is a plant that requires a lot of water during the vegetation period, and it is mainly planted by the Uzbeks in the areas from the city of Shahabad to Kunghirot and around Gurlan, Khozhayli [Ivanin M., 1822: 23]. Of course, the flow of large irrigation networks from these areas created favorable conditions for continuous irrigation of crops.

Since rice is considered a crop that grows only in water, it required a lot of care and special attention. In the Khanate of Khiva, the areas where rice was planted differed sharply from the areas where other types of crops were planted. Rice fields are fertilized with licorice (*Buyan*) rather than manure. 54 cartloads of licorice plants were spread in rows on one hectare of land, and the land was plowed once using a plow. At the end, these fields were irrigated under pressure, and after the water was completely absorbed into the soil, the land was repeatedly

plowed up to 8-9 times before it was cultivated. After tillage is completed, the land is irrigated once more and then the seeds are planted. Rice was planted a few days after sorghum in May, and fields were completely covered with water in July. In order for the water to flow evenly across the field, a pit was dug from the other side of the field (*the quloq – is a place where water is taken from a spring, a canal to a ditch)* [Abdullaev F.A., 1961: 122]) and water was provided from it. After the vegetation period, the rice was not irrigated again. Because if the irrigation is continued after the rice harvest, it has caused serious damage to the rice crop. Harvesting of rice crops planted in large fields began in September. In the Khiva Khanate, the total amount of rice seeds planted on one tenth of land was 7 puds [Girshfeld, Galkin., 1903:156].

According to O. Shkapski's writings, 3-4 puds of seeds were sown on one plot of land, and the harvest was from 40-50 puds [Ivanin M., 1822:24] to 130 puds [Shkapski O., 1900: 33]. Since rice requires a lot of water, it is preferred to plant it in large areas that are irrigated without irrigation. After all, cultivating rice by extracting water from the rice fields was a very laborious process. To do this, each field needed separate tracks and separate livestock to turn these tracks, and farmers had to work tirelessly in the fields all summer long. It was also required to have a large number of livestock to be used as a labor force. It was much more difficult and impossible for ordinary villagers; whose annual income was only due to the harvest on their farm.

Barley is planted only in March of the spring season. 1,300 cartloads of manure were needed to fertilize the barley fields, and after the tillage was completed in July, the fields were irrigated several times. Barley sprouts were watered once when they were half a cubit long. It was watered 5-6 times until its harvest ripened [Shkapski O., 1900: 31]. The barley harvest was also harvested at the same time as the wheat harvest. This type of crop is very productive, and one hectare of land can yield up to 2 tons and 600 kg. Of course, barley was grown in the Khanate both for food and for fodder for livestock.

In the Khiva Khanate, after harvesting wheat and barley, sesame, mash, millet, melon, and sorghum (*gavuch*) were planted for livestock feed [Girshfeld, Galkin., 1903:158]. The use of land in the khanate in this way allowed the owners of one or two acres of land to feed their families. Harvesting the land twice did not occur in all regions of the khanate. Because it was not possible to feed the land in all regions separately for each type of crop in the above order. The main reason for this is the small number of cattle, which are the main labor force in tillage [Girshfeld, Galkin., 1903:157]. In particular, the settlements of the population engaged in agriculture in the Northern part of the Khiva Khanate can be an example of this.

Leguminous crops are also cultivated in the Khanate. These include mung beans and beans. These types of crops are always planted in the second crop period – in July, after harvesting wheat or barley. The fields where mash is grown are not treated with fertilizers like the fields where other crops are grown. The land where this plant is grown was irrigated and cultivated only once, after the wheat was harvested. Then the seeds are planted. So, mash was watered only twice during the growth period. In September, its harvest was fully harvested. Up to 1 ton is harvested from one hectare of land.

Flax, hemp and sesame are also planted for oil. Sesame, like alfalfa, was planted in the second planting period after the harvest of the wheat crop, in the vacant fields. Sesame fields are not separately fertilized. The land was irrigated and tilled only once. But sesame sprouts are watered up to 3 or 4 times during the growing season. Sesame is grown mainly for oil, and up to 50 percent of the oil is extracted from its crop. The obtained oil was used for food. The rest was used as animal feed. Sesame oil was also widely used in agricultural ceremonies (*we will discuss this in detail in the 2nd paragraph of Chapter 3 – author*). Sesame ripened and harvested in September. From 10 pounds to 45 pounds [Shkapski O., 1900: 35] was obtained from one hectare of land. Sesame was planted on a large scale in Khazorasp, Khozhayli, Qunghirot,

Tashavuz, Ilonli, Ghazavot, Qunghirot and Gurlan regions [Ivanin M., 1900:24].

Hemp is also a type of plant grown for oil, and the oil obtained from it is used to repair shoes, and rope is woven from its stems. 1,000 cartloads of sand fertilizer were applied to the hemp field, which was irrigated and tilled 5 or 6 times. After sprouting, it was re-watered 4 times. Its crop was harvested in September. 1200 kg of seeds were obtained from one hectare of land. The rest of the oil from this plant was used as fodder for livestock.

In the Khiva Khanate, cotton seeds were sown on well-cultivated large areas, and 800 cartloads of sand fertilizer were applied to 1 hectare of land. The land is irrigated 3 or 4 times (sometimes 5 times), plowed and cultivated 5-10 times. Cotton seeds are sown at the end of April in soil with sufficient moisture. The cotton field was irrigated at least three times throughout the summer. The first watering was done at the time of planting the seeds, the second watering when the length of the cotton reached a quarter of a meter, and the third watering when it reached half a meter. Cotton planted in fields with sufficient moisture content was irrigated once. Watered 2 times as necessary, no more than that. Cotton ripens in late August to early September. Cotton was picked three times during the summer and this picking process lasted from mid-August to the end of September. 100 pounds of kernels were taken from one tenth of land area. Plant heads (pods) were picked and dried by hand, and cotton was picked from these "tubers" by manual labor in the winter months. And with the help of machines, they separated the cotton from the seeds. In the past, Khiva people also used hand machines to separate cotton from seeds. But by the middle of the 19th Century, they switched to the method of separating cotton from seeds by sawing with the help of special machines. Russians built 14 factories for cleaning cotton on the banks of Amudarya [Shkapski O., 1900:37]. According to Girshfeld and Galkin, Khiva khanate has two steam-powered cotton ginning factories located in Yangi Urganch and Petro-

Alexandrovsk regions [Girshfeld, Galkin.,1903:167]. The cotton ginning factory in New Urganch belonged to the large Yaroslavsky manufactory, and the cotton ginning factory in Petro-Aleksandrsk belonged to the merchant Sazonov. The number of factories working with kerosene was three. The Manuilov cotton ginning plant was located in Petro-Alexandrovsk, the Said Murad Aminov cotton ginning plant was located in the vicinity of this area and in the Toshovuz region. One worker was able to clean one pound of cotton per day by manual labor, while in cotton ginning factories with a gin, it was possible to clean from 200 to 500 pounds of cotton per day [Girshfeld, Galkin., 1903:167]. The cleaned cotton was made into kipas under high pressure in the factory itself, each kipa consisted of 8-10 pounds of cotton, which were loaded on camels or carried to the railroad tracks. Cotton was transported to Orenburg by camels, by boats to Chorzhou, and beyond the Caspian by railway. 8 pounds of clean cotton were obtained from 1 pood of boll, 100 puds of boll, 20 puds of clean cotton were obtained from 100 poods of land. The price of a pound of cotton in the market was 4-7 rubles, depending on the variety. 80-140 Roubles gross profit was brought from clean cotton on one tenth of land area [Shkapski O., 1900: 37].

Cotton was mainly grown in Gurlan, Khanka, Shavot and Yangi Urganch [Ivanin M., 1873: 24]. Khiva people tried to plant cotton because of good profit from cotton crop, but it was not possible due to lack of arable land in most of the population.

According to E. Kabulov's analysis, taxes on wheat, alfalfa, and corn cultivated land in Central Asia are equal to the amount of tax collected from cotton, and since the gross income from one hectare of cotton is 4 or 5 times higher than the income of these crops, tax benefits and income the high availability of cotton caused the population's interest in planting cotton [Kabulov E., 2014:114]. So, this situation, like in other regions of Central Asia, had a significant impact on the Khanate of Khiva, and later it led to the cultivation of cotton in a large part of the territory of the Khanate, and the cultivation of grain fell to the second

level. The development of cotton cultivation in the Khanate became a broad policy of Tsarist Russia by the 19th Century and allowed the rapid development of the textile industry and the creation of a cheap raw material base.

Cotton fibers are spun into yarn, cloth is woven, oil is extracted from the seeds, and animal fodder is made from the pods. Before, cotton was brought to Russia only from America, but from the end of the 19th Century to the beginning of the 20th Century, cotton was brought mainly from the Khiva and Bukhara Khanates, Turkistan and Trans-Caspian regions. At that time, 3 million pounds of cotton were brought from Central Asia to Russia [Shkapski O., 1900:36]. As a result of the development of industrial production, the Russians' need for Central Asian cotton increased. The main reason for this is that Khiva cotton seeds are much cheaper than American cotton. Cotton fiber purchased from America and Egypt is very expensive for Russian owners, and cotton grown in Central Asia is much cheaper for them and is considered a ready raw material. For this reason, there was a need to grow the American type of cotton in this area. In his time, N.N. Raevski justified the fact that the development of cotton cultivation in Central Asia will bring great benefits [Ziyoyev H., 2006: 74]. The difference between Khiva cotton and American cotton variety is that Khiva cotton tuber is not opened, but cracked, and the quality of the American variety is much higher.

They also tried to plant clover in large quantities, because this plant did not require special care and gave a good harvest for 8 or even 10 years. Of course, in order for this type of plant to produce a continuous crop every year, 800 wheelbarrows of sand and fertilizer were required to be cultivated on 1 hectare of land every spring. The seed did not give a good yield in the year it was planted, but it started to produce high yields from the second year. But the farmers of the Khiva Khanate managed to get a high yield from clover in the first year itself. Of course, in order to get a high yield from clover in the first year itself, the seed is sown in the muddy field immediately after the first irrigation after

harvesting the wheat. The people of Khiva cut the stem and root of clover with a sickle. In the summer months, the clover crop was harvested up to 3 or 4 times. About 4,000 orchards were harvested from each hectare of land. Clover grew so large that the roots were removed by hand, a process that was difficult for farmers. Therefore, the fields with clover were not plowed for 8-10 years, and the crop of green clover was harvested every year.

In the 1753 report of Daniel Rukovkin, who traveled to the Khanate of Khiva, information was given about the types of crops cultivated by the inhabitants of this land. He wrote that wheat, millet, chichivitsa (*marzhimak*), sesame (*kunzhara*), sorghum, vegetables and cotton were grown in the khanate [Rukavkin D., 1840: 30].

In the archive documents of the Khanate of Khiva, it is written that "*in the year 1282 (1865-1866), 300 bushels of wheat and 750 bushels of rice were harvested from the property in the Qilich Niyozboy area*" [Archive of the Institute of Oriental Studies of the Academy of Sciences, Fund no.33 p. 2, vol. 1]. So, rice and wheat were the main cultivated crops in Khiva Khanate. A large amount of grain growing in this region has led to a good start of grain trade with neighboring regions, including Bukhara. About 200,000 pounds of grain were sold annually in foreign markets [Girshfeld, Galkin., 1903: 157]. Most of the grain was also sold to nomadic pastoralists. The main grain markets in the Khiva Khanate are located in Kungirot, Khozhayli, Chimboy and Kokhna Urganch regions.

G.I. Daniliveski also reported that watermelon, pumpkin, melon, carrot, onion, pepper and alfalfa were cultivated in the Khiva Khanate, in addition to grain crops [Danilevskiy Z., 124]. I. Ivanin recorded that the population of the Khanate cultivated poppy (mak) for consumption as a grain and that it was planted in small quantities in some places [Ivanin M., 1873: 26].

Alfalfa is cultivated for livestock fodder. Half a pound of alfalfa seed was used to plant one tenth of land. It is planted mixed with wheat and barley. Before sowing the alfalfa seeds, the plowed land was thoroughly

leveled with rams and troweled. The seeds were watered after sowing and the seedlings were watered frequently to ensure good germination. The number of such waterings was 6-8 times. It could be harvested up to five times a year. Alfalfa was planted and cultivated mainly by Turkmens in the lands around Tashavuz, Zey, Ghazavot [Ivanin M., 1873: 25].

Chigin is a plant with small seeds, whose seeds are used as fodder for livestock.

There were very few pastures in the territory of Khiva Khanate. That's why the Khiva people did not destroy the reeds and licorice plants growing around the fields, but left a certain part of them on the surface of the earth, cut them with scythes and stored them for the winter for livestock.

In the Khiva Khanate, marena (*ruyan*), potatoes and cabbage began to be cultivated by the end of the 19th Century. Cabbage and potatoes were grown for sale to the Russians. 800 cartloads of fertilizer were needed for one hectare of land to plant these crops. Fertilized fields were irrigated up to 3-4 times and processed up to 10 times. After the fields were plowed, they were divided into separate fields. Ditches were dug for water to flow, and soil was dumped along the sides.

Red dye is obtained from marena (*ruyan*). This red dye was used to dye woolen and cotton fabrics. This plant was planted in June. Marena was harvested after 3 years and the crop was sun-dried and threshed. The crushed marena was boiled in a pot and the color was extracted from it.

A 3-meter trench was dug for melons, pumpkins, cucumbers, and watermelons, and a 1-meter ditch was dug for carrots, cabbage, and marena. In addition to these ditches, delimiting pits were dug, their width was large enough to accommodate 7-8 sargins of crops.

Onions are mainly grown in sandy areas around Khiva and Khanqa. According to O. Shkapski, the Khiva people planted onions in vineyards [Shkapski O., 1900: 34]. The plots of land where onions are planted are

treated only with sand, fertilized, watered once, and onion seeds are sown on the ground in April. About 6 tons of onions were obtained from one hectare of land.

Melon qayir (*used in Khorazm in the sense of soft, sandy land. Qayir is interpreted as a gray land where melons are planted mainly because melons are planted* [Dusimov Z., 1985: 62]) planted on land. Its zamcha (*early ripening variety*), gurvak (*gurvək- this melon is a summer variety. It is called "kurvak" or "bo'rikalla" in Tashkent. This melon is very plump, round in shape, thick flesh, ripens in July-August. there are varieties: "aq", "kara", "gök", "ala", "kyzi'l"* [Abdullaev F.A., 113]), blue melon, gulobi (*gulobi – this is a melon variety is grown in autumn-winter, stored until spring. The color is yellow, it is considered the largest and the thickest melon among the melons. There are several types of it, in particular, "ala", "alma", "qatt", "qara*") [Abdullaev F.A., 1961: 113], bichak (*beshak is a kind of autumn melon, it ripens in September-October, its color is blue-black, and it has a netted appearance. It is a melon stored in the winter and is considered the sweetest among Kharezm melons)* [Abdullaev F.A., 1961: 113] species were cultivated [Girshfeld, Galkin., 1903: 162; Shkapski O., 1900: 81]. Melon varieties with roses are well preserved until spring. In the summer months, bread with melon was the main food of the population. Most of the melons and watermelons grown in the Khiva Khanate were sold in the domestic market, while 200,000 pieces of melons and watermelons were exported every year, including to the territory of Chorzhou [Girshfeld, Galkin, 1903:162]. In the work "Bahr ul-asrar" by Mahmud bin Vali, it is mentioned about the type of melon called koktarnay, and it is noted that this type of melon brought from Khorazm was cultivated even in the Balkh region [Mahmud bin Vali, 1977: 24-25]. The Khiva melons are famous for their extreme size and taste. Each melon was three-quarters of a meter long and over six inches in size. This bounty is planted on sandy soil, so it is grown in large numbers in the Khiva region.

Melon was grown in the oasis, mainly in the lands where the water of the river ran off, i.e. "qayirs". Since melon is not a water-loving crop,

there was no need to water it much. According to sources, an unusual method of melon cultivation has been used in Khorazm since ancient times. In particular, melon seeds were planted and grown between the roots of the cut-off-the-long side. Since the gorse is a desert plant, its roots absorb all the moisture in the soil, and the melon seeds turn green due to this moisture. This unique method of melon cultivation in Khorazm was called "habbən" [Abdullaev F.A., 1961:123]. Watermelon is also grown a lot. Both melons and watermelons were among the most cultivated melon crops in the Khanate. Pakhau kadi, osh kadi and water kadi types of pumpkin are planted [Shkapski O., 1900:81]. Planting and watering periods are determined by the population depending on the weather and the type of crop.

In 1883, during the reign of Muhammad Rahim Khan II, German Mennonites, consisting of 10 families, were moved by the Russians to the territory of the khanate. The authors [Safarov O., Sultanov O., 1993: 62-68] provided the following information about the way of life and economy of the German Mennonites in the Khanate region. They engaged in farming in Khiva Khanate and obtained high yields from many types of crops and cultivated such types of crops as tomatoes, cabbage, potatoes, beets, cucumbers, eggplants. The inhabitants of the Khanate learned to plant potatoes, tomatoes, and eggplants from them. Also, these German families brought an early-maturing variety of poplar to the oasis and planted fruit trees such as pears, apples, and quinces in their gardens, and many decorative trees such as gujum, oak, poplar, and willow around their gardens. They used these trees to make farm implements and house construction.

In the 40s of the 19th Century, a number of articles were published in Russia about the Khanate of Khiva. For example, G. Gilmersen noted that in addition to the crops mentioned above, Turkish beans, peas, yellow and white turnips were grown in Khiva, and because Khiva was not rich in wet fruits, the fruits were very expensive, and only wealthy people bought them [Gilmersen G., 1840: 117, 121].

So, all kinds of crops were grown in all parts of the Khiva Khanate. But horticulture is not well established in most parts of the Khanate, only in the southern part it is well developed. Apples of Hazorasp, pears, and melons grown in the sands of Khiva were very sweet, and these bounties were especially sought in the Russian markets, and the peasants exchanged them for Russian cast-iron boilers.

Among grain crops grown in agriculture, wheat is the largest in terms of area, and corn is in the first place in terms of productivity. In addition to them, Bukhara millet, chegura, peas, lentils, hemp, tobacco, sesame, and cotton were also harvested well [Khiva ili Geograficheskoe i Statisticheskoe Opisanie Khivinsky Khanstva, 1840: 40]. Russian researchers classified these crops grown in the Khiva Khanate in different ways. In particular, P. P. Ivanov says in his research that crops in Central Asia are divided into two depending on the time of sowing: autumn crop (white) and spring crop (blue) [Ivanov P., 1935: 750-751]. According to A.N. Sobolev, white crops included barley, wheat, flax, poppy, that is, all autumn crops [Sobolev L., 1874: 9]. Green crops include spring and summer crops: rice, millet, mash, peas, and oats. So, most of the white and blue crops were cereal crops. M. Brodovsky writes that autumn crops planted in Central Asia are planted at the end of May – Beginning of June [Brodovski M. I., 1872: 259-260]. In the Khorazm region, wheat and barley were autumn crops, and all other crops were considered blue crops. In particular, we can see that wheat and barley are not included in the list of green crops in Agahi's works. For example, in the author's work "Gulshani Davlat" it is written that some types of green crops were harvested in the season when barley and wheat ripened and harvested [Agahiy. Gulshan State., 1980: 194]. In Bukhara, white and blue crops included only grain crops, while in Zarafshan and Kashkadarya, they consisted of vegetables and greens (onions, carrots, turnips) [Abduraimov M., 1966: 233]. In Tashkent and Ferghana, barley and wheat are planted in autumn and they are called autumn crops.

According to archaeological and written sources, farmers divided the land into 3 parts and planted crops. Large areas were mainly planted

with barley, wheat, millet, mung bean, sesame, and flax. Since these crops required little water, they were satisfied with 2 or 3 irrigations. They were harvested in May and June. After these crops were harvested, second crops were planted in their place – corn, cantaloupe, and watermelon.

In the middle of the 18th Century, the Khanate of Khiva established extensive trade relations with Russia and Iran in addition to Bukhara and Tashkent. According to H. Ziyaev, during this period, Russian merchants bought seeds of various types of poliz crops grown in the khanate for state needs and planted and tested these crops in the Orenburg region [Ziyaev H., 1973: 80].

According to the information provided by D. Rukavkin, cotton was grown in large quantities in Khiva, and many mulberry trees were planted in gardens and by the water [Ziyaev H., 1973: 80]. Therefore, the planting of mulberry trees in all regions of the Khiva Khanate indicates that the silk industry is well established in this region.

In the Khanate of Khiva, the population had the opportunity to grow all kinds of crops and get high yields from them in their time. The demand for all types of crops grown in the khanate was high in the foreign market. Therefore, the high yield from agriculture in the Khiva Khanate led to the extensive development of foreign trade.

All types of crops were grown in Khiva Khanate agriculture and a high yield was obtained from them. Based on local and international needs, the population paid great attention to the question of what types of crops to grow. Because of this, efforts were made to plant marketable crops. This situation led to the relative decrease of some fruits and vegetables, and the increase of some, which, in turn, led to the origin of a number of socio-economic and ecological problems. Nevertheless, it is noticeable that farmers used skills such as turning to local experiences, working in consultation with skilled farmers, establishing crop rotation, traditional fertilization and tillage in order to overcome such situations.

1.3. Involvement of the Population in Agricultural Work and the Level of Supply of Labor Tools in the Khiva Khanate

In the Khiva Khanate, agriculture (farming and animal livestock) was one of the main branches of the economy, as well as trade and handicrafts. 90 percent of the population is engaged in agriculture. Agricultural products played an important role in domestic and foreign trade. That is why the Khiva people paid special attention to the issues of land cultivation. Agriculture is mainly developed on irrigated fertile lands. The main part of the people working the land were the poor inhabitants of the villages, who did not have their own land, but worked on rented land, the owners of the land they worked on were representatives of the upper class. Saline lands required a lot of labor because they were less productive. Tenant farmers also worked on low-yielding saline lands belonging to the upper classes. During the Khiva Khanate period, they were called half-men, tenants and bevatans. This type of land mainly includes lands in the lower reaches of Amudarya.

Compared to other regions of Central Asia, the people of the Khiva Khanate had more experience in increasing the productivity of barren, saline soils, and for this they were able to use various tools effectively. In his works, I. Danilevski highly appreciated such skills of the Khiva people [Danilevski Z., 119].

The farmers of Khorazm from ancient times knew very well which type of crop to plant in which soil, and because of this, they got a high yield from any crop. Even in the 18th and 19th Centuries, alfalfa and sorghum were considered one of the main types of crops that improve the composition of the land. Therefore, those who prefer to plant these plants on more saline lands. Because alfalfa and sorghum kept the amount of salt in the soil in moderation, and by planting them, it was possible to soften the soil effectively.

In the first half of the 18th Century, it is observed that most of the lands of the khanate were salted. In particular, the Russian ambassadors Gladeshev and Muravin, who were in Khiva in 1740-1741, wrote that

alfalfa was planted on most lands of the Khanate. Because during this period, internal wars and feudal wars between the khanates became widespread, the pace of land cultivation decreased sharply and caused the failure of cultivated fields [Gladyshev, Muravin, 1851:75].

The work titled "Nashi Sosedi v Sredney Azii. Khiva i Turkmeniya" published in 1873 reports that barley and millet were rarely cultivated in the northern part of the khanate and that they were grown from plants that required little water. At the same time, marena (royan) was also grown in the khanate from the plants used for dyeing. This caused the development of painting in Khiva Khanate.

By the 19th Century, the Khanate of Khiva used composted soil mixed with sand, muddy soil obtained from digging ditches, and scraps from demolished old houses to cultivate the land. This opinion is confirmed by the data in the researches of the Russian Ambassador O. Shkapski [Shkapski O., 1900: 29-30]. He shows that in the Khanate they used the following methods of tillage to obtain high yields from saline land:

1) increase the productivity of the land by throwing pieces of demolished houses on the field;

2) working the land with manure.

In the first method, the residents threw pieces of old, broken houses and soil obtained during the digging of ditches into the fields. Since the thatched walls with straw plaster of the ruined houses are made of pure soil, the soil of these straw walls has a high effect on the nutrition of the earth and the saturation of the soil composition with natural minerals.

In the process of feeding the land with manure, the farmers of the oasis mixed the dung of horses, black cattle and sheep with sand, prepared a natural fertilizer and sprinkled it in large quantities on the fields. The composition of this fertilizer consisted of 80% sand and 20% manure [Girshfeld, Galkin, 1903:162]. The sand contained in this prepared natural fertilizer softened the soil effectively and retained moisture well. Therefore, oasis farmers have effectively used this method to improve the composition of saline soils.

Before winter plowing, farmers made a large pile of manure in a part of the field (*atiz*) and sprinkled sand on it to prepare a special fertilizer with a mixture of sand. Due to the snow and rains of the winter months, the sand is mixed with manure. In early spring, ready-made manure was thrown into the fields in small piles with the help of carts, and the piles were spread evenly over the entire field with shovels. The fields needed a lot of manure. In particular, up to 800-1000 cartloads of manure were dumped on every thousand meters of land, sometimes even more [Shkapski O., 1900: 29]. The more manure is applied to the land, the more its productivity increases and the land becomes soft. Mola-dandana was widely used in the cultivation of such lands.

About another method of effective fertilizing of the land, we give the following information from the work of I.Ivanin [Ivanin M., 1873:40-41], that is, the sediments left by the residents during the cleaning of canals and ditches were thrown to the cultivated fields every year. According to the author, the effect of this sedimentary layer was not very effective in improving the condition of the land. Therefore, it was required to continuously fertilize the fields in winter and autumn months. Ivanin also wrote about the development technology of fertilizer applied to the field. He wrote that 2 centimeters of sand was thrown on one side of the field. This thickness of animal dung was thrown on top of it, and another thickness of soil was laid on it, and they were mixed to make a new fertilizer. 500 cartloads of this fertilizer were dumped on the cultivated fields, and on some lands 1000 cartloads and even more. Fertilizers prepared in this way were also sold [Ivanin M., 1873:40].

About another method of fertilizing the land the book "Nashi Sosedi v Sredney Azii. Khiva i Turkmeniya" also mentions the application of manure and fresh soil to the saline lands, and also describes a more perfect method of manuring the land. That is, the lands allocated for planting or plowing are primarily divided into fields. Small ditches were dug from the four sides of each plot of land. These ditches are connected to big ditches (salma). These ditches were dug to a depth of one-fourth

of the depth of the main ditch, and they were filled with plant residues from the fields. Instead of manure, soil was removed from the gardens around the residential yards. This soil is sometimes mixed with plant remains, sometimes with ash, and with straw-plastered fragments of demolished houses. Oversized straw-plastered lumps were shoveled. In the last process, water was sent to dug ditches. At the time of irrigation, the humus in the ditches was spread evenly on the area prepared for sowing with the help of water. Since some cultivated fields are located far above the ditches, the water was released through a special water release device (chighirs) [Nashi Sosedi v' Sredney Azii. Khiva and Turkmenia, 1873:119]. After the water is completely absorbed into the soil layer, the earth is turned over. The soil is tilled with a toothed board. After the crops turned green, the land was watered again in the above order. When and how often to irrigate a field depends on the type of crop being planted.

As in all regions of Central Asia, in this region, in addition to cattle dung, silkworms and various poultry dung were used as fertilizers. Especially in the southern part of the Khanate, we can see that the above works aimed at continuous cultivation of the land and increasing its productivity have been carried out more than in other regions. The main reason for this can be explained by the fact that in the southern regions there is a need to improve land reclamation due to the continuous use of land and harvesting of crops up to twice a year.

In the Khanate of Khiva, in addition to fertilizing land, salt washing also played an important role in increasing the productivity of the land. Many sources provide important information about salt washing operations in the Khanate. For example, in the work of O. Shkapski [Shkapski O., 1900: 25], this process is discussed in detail. He explains that the soil moisture in Khiva Khanate is very low. Emphasizing that it is impossible to cultivate and get a good harvest from the soil with insufficient moisture, the author mentions that the Khiva people tried to irrigate every square meter of their land regularly throughout the year.

Of course, in this period, the farmers plowed the land evenly in order to ensure that the water goes to the fields at the same rate and that the water is not wasted. In order to facilitate the flow of water from one of the separated plots of land to the other, a 2-3-square meter water channel (quloq) was dug for each of the plots.

In this way, each leveled land area was 200 or 300 square sarjins, and in the Khorazm region these fields were called as "Atiz". Farmers tried to make one land area higher than the other land area up to one and a half or two versts (*a verst is equal to 1067 meters*) [Shkapski O., 1900:25]. The purpose of this is to ensure that water flows easily and quickly from one field to another and not to waste water excessively. Another advantage of irrigating the fields in this way is that the land absorbs enough water for itself. As a result, the soil layer becomes soft and all the salts contained in the soil come to the surface layer of the earth. During the second watering, the salts that came to the surface were washed away. If, after irrigation, more than normal salt appeared in the surface layer of the land, the farmers loaded the salt into carts and took it out.

In addition to the above methods aimed at improving the soil composition, the population improved the condition of the land by building irrigation systems. They were called drainage canals (*zakhkash*) (*This is also common in other regions of Central Asia. For example, in the Farghana Valley, farming has been a field since ancient times, and the farmers of this land paid great attention to the soil composition. The difference between Farghana lands and Khorazm lands is that the lands of this region are irrigated and consists of non-irrigated cropland).*

An attempt was made to increase land productivity in the Khanate through the method of crop rotation. For example, if cotton is planted on a certain area for three or four years, maize grain, wheat or alfalfa is planted the next year. This method of farming was of great importance in the natural recovery of land productivity. In particular, this process was considered the only method available at that time to restore soil

composition and fight against various diseases. Crop types in crop rotation were determined by experienced farmers.

L. Kostenko, who took part in Khiva campaigns in 1874, gave more information about farming techniques [Kostenko L. 1874:No.4], of I. Krauze [Krauze I. 1874: 40-46].

While oxen, horses, and donkeys were widely used for transporting manure to the fields and harvesting crops, the labor of these animals was also necessary for the release of water to the fields to wash away the salt of the land, i.e., turning the plows. In particular, camels were used to move ullu chighils (large wheels), and oxen and horses were used to move medium and small wheels. The poor peasants used donkeys because they could not afford camels, oxen and horses. It was also written by Gladyshev and Muravin that peasants used oxen on many lands and horses on some lands as working animals [Gladyshev, Muravin, 1851:2].

We see that agriculture in Khorazm is based on artificial irrigation. Therefore, it is necessary to dwell on irrigation systems and irrigation methods in this paragraph. A number of researchers, in particular, S. Tolstov and Ya.Ghulomov, have studied the irrigation system of this area well. In particular, the information about waterways and irrigation system of the oasis in "From the History of Irrigation of Kharezm" (in Uzbek) by Ya. Gulomov is of great importance for our research.

Of course, the country's irrigation system has a long historical development. Information about the country's irrigation system was also recorded by medieval scientists. For example, Abu Rayhan Beruni's work "Osor-ul-Boqiya" (*meaning "Monuments Left by Ancient Peoples"*) contains detailed information about the location of water sources, natural fountains, and irrigation canals in the Khanate [Beruni. Translation manuscript stored in ASRUz. no.1171. – P. 432-440].

In the Khiva Khanate in ancient and medieval times, the construction of water structures and the determination of water intake points of large canals were the most difficult issues in the activities of irrigators. Of

course, constant maintenance of irrigation facilities and construction of new irrigation systems required a lot of money and effort. Therefore, the more stable the state power in the Khanate, the more systematized the irrigation works. This made it possible to expand the arable land and supply water to a larger part.

Rainfall and the rise of river water in agriculture were of great importance for farmers. Floods were often observed in rainy years, and the width of the river increased to 3-5 km during major floods. The water level has increased from 0.6 to 1.6 m. Because of this, high embankments were built on the banks of the river by local settled farmers during periods of heavy flooding. Through these dams, they tried to protect the cultivated fields around the river from flooding. During the floods, a very large flow was observed, and in the local vernacular, this flow was called "Degish" and "Yiqqin" *("Yiqqin" was borrowed from Karakalpak and Kazakhs* [Gulomov Ya., 1959: 30]). Degish broke the banks of the river and created "Saqa" for new tributaries. For the Khorazm mirabs, it was considered extremely difficult to determine the starting points of the canals from the river during the flood. When determining the starting point of the canal from the river, the main attention was paid to the strength of the soil and its composition (*the banks of the river mainly consist of soil formed due to the muddy layer*). Because the water washed the banks of the river during the floods and rains. As a result, the dams diverting water from the river to the canals were also washed away. That's why the ancient Mirobs preferred to use the quiet and constantly flowing tributaries of the river for the purpose of releasing water into the canals. In some cases, due to the shortage of water in the river, irrigators tried to find other ways to get water to the canals. For example, in order to release water from the river to the canals located higher, they built water structures with increasing slope. Residents effectively used traditional methods of leveling to dig irrigation canals and ditches (nevilirovka).

Digging and cleaning of irrigation systems during farming is also considered one of the most important issues in the Khanate. Hashar

work was carried out continuously by the residents. Hashar was called "Dig" or "Begar" among Khorazm people. Excavation lasted 12 days and was distributed from one person to one hectare of land. Residents participating in Hashar were involved in cleaning canals and their heads, strengthening dams, and repairing water lifting dams in the given area for 12 days. The khans personally supervised the digging of the canal. In particular, Allahkuli Khan personally brought forty thousand slaves to the digging of the Tashsoqa canal, the new head of Katta Polvonyop [Gulomov Ya. 1957: 274]. Also, the local population was widely involved in the excavation work. In particular, according to the data of 1873, more than six thousand people of the khanate participated in the cleaning of ditches. Among them were Russians, Kazakhs, and Turkmens [Abdurasulov A., 1997:25].

In addition to farming, the residents of the Khiva khanate were also engaged in horticulture and viticulture. During the reign of Muhammad Rahimkhan I and Allahqulikhan, they built a number of gardens around Khiva, Yangi Urganch, Manoq and Khazorasp Qal'as [Rahmonova Yu., 2019: 64]. Gardens are located around the houses. The area of the gardens is rectangular, surrounded by a thatched wall. A large pond was built in the middle of the gardens, and the land was irrigated from this pond through small ditches. In horticulture, mainly 5 varieties of peaches, 4 varieties of plums, 4 varieties of apples, 5 varieties of apricots (*hosaki, kokpishar, paivandi, kizilarik and kupuk*), pomegranates, quinces and dried cranberries, and 10 varieties of grapes are grown in viticulture [Nashi Sosedi v' Sredney Azii. Khiva and Turkmenia, 1873:120]. Pomegranate, grape, and fig trees were buried in the ground to protect them from the cold in winter, and opened in early spring. There was no need to protect other fruit trees from the cold in this way. In the years when the winter came cold, the yield of fruits was low, but they did not dry up under the influence of cold weather. Many mulberry trees are planted on the banks of ditches and canals. The leaf of the mulberry tree was widely used in sericulture, another main type of farm. The inhabitants of the Khanate also ate the fruits of the mulberry tree instead

of food. Also, molasses was made from it (*Shinni – is a type of jam when the mulberry fruit was ripe, the people picked it and put it in a large pot and boiled it until it became liquid. When this dessert was ready, it turned into a black color, very sweet taste, a little darker juice. The people of the Khiva Khanate put it in containers and took it away and those who prepared sweets such as those used in folk medicine and consumed as daily food*). Another feature of mulberry is that the veins of the tree absorb groundwater well. The people of the Khanate planted this tree around the cultivated fields and in front of the houses. Therefore, the mulberry tree also served as a means of purifying fields and houses. Therefore, mulberry has great importance in horticulture.

During the Khiva Khanate, the population was busy not only with planting agricultural products, but also with protecting it from various pests. After all, the main pests of Khorezm agriculture were birds, animals, rodents and grasshoppers. Also, unfavorable climatic conditions, namely hot summer, sand storms, scorching heat and lack of rainy days have created many difficulties for the farmers.

One of the main means of causing damage to crops and crops in agriculture was small birds (*birds, sparrows, sparrows and other species*). Crops were damaged by them in two seasons. The first is when crops are sown in the spring, when flocks of birds flock to eat the grains that have come to the surface after the seed has been sown, especially white sorghum and corn seeds. In autumn, when the crop is ripening, they fly in flocks to eat the grain ears and have a significant effect on the reduction of the crop. Farmers have come up with several ways to protect crops and crops from birds. One such method was to scare them away by placing field guards (a field guard is a small wooden doll dressed in old clothes and placed high up in the middle of the field) made of wood, dressed in old clothes, in the fields. The second method is to pile up pieces of wood in towers built high above the thatched wall in the middle of large fields and gardens. When a flock of birds flew to the harvest, residents drove them from the field by throwing these pieces. This flock of birds also caused great damage to horticulture. In

order to fight with them, branches and branches are thrown on the fruits of the tree. In this way, crops and crops are also protected from scorching heat. Birds that came to fruit trees were driven away by banging objects together and making a loud sound. In some cases, these objects were placed on tree branches in such a way that even in a light wind they touched each other and made a sound that scared the birds. They protected the fruits from birds in this way. Fruit trees are mainly damaged by large birds, i.e. mynas and oleanders.

The locusts were dealt with as follows. Since they are flying insects, they beat objects together and scare them with loud sounds to prevent them from flying into the crop field. Another effective method is that the fields where grasshoppers have laid seeds are thoroughly plowed and their larvae are destroyed by saturating irrigation [Shkapski O., 1900: 50].

In the Khiva Khanate, hot summer and sand storms were observed a lot in the spring. In order to protect themselves from them, the residents surrounded small fields and gardens with straw walls, trees were planted around them for the purpose of protection. Many poplar and mulberry trees are planted around large cultivated fields. The poplars served as protection from sandstorms, and the mulberry tree absorbed the soil's moisture and kept the soil moist. To prevent sand migration, several small water ponds have been established in the deserts. The water in these ponds held moisture. Another way to protect against sand was to send excess water from consumption to sandy lands [Shkapski O., 1900: 50]. Later, in this way, the desert areas were gradually mastered by the population. Cultivation of onions and melons has been started on these appropriated lands.

Not only the fertile soil and favorable climatic conditions, but also the importance of labor tools in the Khiva Khanate were of great importance in obtaining a high yield from agricultural products. A number of structural changes took place in the oasis agriculture of the Khiva Khanate, but the tools and agrotechnics remained archaic without development. In an article published in 1873 [Nashi Sosedi v' Sredney Azii. Khiva i Turkmenia, 1873: 119-120] It is said about the simplicity of

the implements used to cultivate the land in Khiva Khanate. Even in the 18th-20th centuries, the farming culture of the Khiva Khanate was materially and technically very backward, and farming equipment consisted of a trowel, a plow, a spade and a hoe [Khanikov N., 1843: 144-147; 522]. According to the results of archaeological research, the tools used in plowing and tilling fields remained almost unchanged for thousands of years, and these agricultural tools were widely used by the population until the 30s of the 20th Century [Sovremennye etnosotsialnye protsessy na sele, 1986: 74; Etnograficheskie Ocherki Uzbekskogo Selskogo Naselenia. 1969:53]. As in the whole of Central Asia, in the Khiva Khanate, one of the main tools for working the land was a plow [Aleksandrov N., 1916-1917: 79; Yuferev V.I. 104-106] and this work tool was called differently (umich, plow) in different places [Hamburg B., 1975:107; Kislyakov N.A., 1947:115]. In the Khiva Khanate it is said that it was plowed [Sazonova M., 1952:255]. The plow was almost the same not only in the Khorezm oasis, but also in Central Asia, and it differed in some aspects in its construction according to the natural and geographical conditions. Gladyshev and Muravin described it as the most archaic tool of the Khiva Khanate [Gladyshev, Muravin., 1851:21]. In different regions of Central Asia, the plow was made from different trees. For example, in Tashkent and Fergana regions, it is made from apricot, kharagoch, walnut, mulberry and apricot [Gladyshev, Muravin, 1851:218], in Surkhan oasis from apricot and mulberry, and in Khorazm from apricot, mulberry and apricot. The plow has been used for 2 to 15 years. The ability of the plow used for a long time to turn the land with quality has decreased, because the lower body of the plow used for a long time has become thinner, and the heel of the plow has become flat [Hamburg B., 1975:110].

Plows are made in different sizes. When making it, the size and strength of the animal to be paired, the size of the plowed land, and the material it is made of were taken into account. These labor tools were mainly supplemented by double oxen, and horses were almost never used, because they quickly tired, reduced the possibility of plowing the

land efficiently and flatly, and their use was too expensive for the peasants. Sometimes camels were used, and donkeys were used by poor farmers who did not have oxen.

Despite the fact that the plow is archaic for the inhabitants of the oasis, it is still preserved in some places. In the Khiva Khanate, there was a cast-iron part of the ploughshare and a wooden one, but it was made of iron (*in the Khiva Khanate, the three parts of the plow made of cast iron were called "poza" and the masters who made them were "Pozachis"* [Otamurodova A, 2015:17]) is rare. This can be explained by the lack of development of blacksmithing in Khiva Khanate. Because in the sources of this period there is information that the necessary iron products, cast iron, copper, iron were imported from neighboring Russia [Nashi Sosedi v' Sredney Azii. Khiva and Turkmenia, 1873:122].

Shovels were used for leveling the land and digging ditches. In the excavations in Aqcha-Helin, a shovel from the XIII-XIV Centuries was found [Kydyrniyazov M., 1989: 94], which confirms that this tool was widely used in agriculture even before the Khiva Khanate. Its three earth-moving parts are made of iron and cast iron. Another working tool was called "Kapcha" in the Khanate, which was widely used by the people to work the land and clean the irrigation systems. Kapcha is much lighter than other work tools. The fact that its upper part is made of iron in an oval shape made it much easier to work the land. The shape of this tool is different from a shovel. Archaeological findings confirm that the Khorazm people used this tool in the XIII-XIV centuries. In particular, a shovel with two ears was found in the Talaikhan-ota caravansaray excavations [Kydyrniyazov M., 1989: 94]. It is very light, has oval-shaped blades, and has two lugs designed for footing for ease of turning the ground. Another tool widely used in tillage was the hoe. Its handle was made of a long piece of glazed wood, and the tiller part was made of thick iron, tapering smoothly towards the tip. Its shape resembles the number seven. They used a special agricultural tool, that is, "yava" to gather and collect hay. Yavas are also made of wood. Khiva people used mala-dandana to soften the earth and turn the surface layer.

This work tool consisted of a board 3 meters long, half a meter thick, and 2 meters wide. It was pierced with two rows of iron teeth as sharp as the tip of a spear. The teeth are arranged parallel to each other. A long wooden handle is attached to the board with iron teeth, which is connected to the "yarma". Two holes were opened on both sides of the handle, and a board was fixed on one side and a beam on the other side. The yarma is made of wood, two on each side of it, totaling 4 small wooden pegs. This is a wooden stake that is placed around the animal's neck and secured by a belt at the base of the neck. In the process of plowing the land, the metal side of the mala-dandana is turned down. The oxen joined the pair, and the farmer himself stood on the mala-dandana and directed the movement of the oxen. In this way, the upper part of the land is softened and cultivated.

M. Sazonova [Sazonova M., 1978: 255] divided mola-dandana into two parts. Dandana – for overturning the surface of the soil, mola – for leveling the overturned surface of the earth. One of the most common working tools is a sickle. It is widespread not only in Khorazm, but throughout Central Asia. Scythes were widely used for harvesting agricultural products, grain crops, manure, hay and alfalfa. Its structure is in the shape of a question mark, mainly made of steel, with a wooden handle attached to it. Scythes are made large or small according to the requirements of their users. More than two types of sickles were used in the oasis. These are: common iron scythes for mowing grain crops such as barley and wheat, light scythes for mowing hay, alfalfa, and sorghum. By the beginning of the 20th Century, in the areas where the Russians moved, light and heavy scythes were widely used for mowing alfalfa and hay for livestock [Sazonova M., 1978:119]. The sickles used by the Khorezm people differed from the sickles of other regions with their unique shape and small teeth. Sickles of this shape were also used by the Tajiks of Karategin, Darvaz, Yozgulom [Jabbarov I., 1994:102]. Local sickles in other regions of Central Asia are almost identical, they differ only in size and shape of the blade.

Another labor tool used in agriculture is "tir", which is called "Zaghama" in some cases. It is often used during planting or harvesting. It is circular in shape and made of wood only. Currently, there are also types made of iron and plastic. The sieve was used to sort the seeds. It is also circular in shape and the bottom is made of thin iron with small holes.

Khorezm oasis region did not have enough favorable climate and soil conditions for farming, but people worked hard and worked the land with the help of primitive tools, built many large and small irrigation networks, and were far ahead of other regions of Central Asia in irrigated agriculture in this period.

Peasants cultivated the land by working very hard and laboriously, using undeveloped labor tools.

CHAPTER II
IRRIGATION SYSTEM AND CHARACTERISTICS OF IRRIGATION WORKS IN THE AGRICULTURE OF THE KHIVA KHANATE

2.1. The Role of the Regulated and Un-Regulated Irrigation Structures in Agriculture

As in almost all regions of Central Asia, agriculture in the Khanate of Khiva was mainly based on artificial irrigation. In order to implement artificial irrigation, people have been busy creating and repairing irrigation systems for centuries. Based on the sources and scientific literature on the artificial irrigation system of Khorazm, we can witness the existence of regulated and unregulated irrigation systems in the khanate. It is known that the lands of the Khiva Khanate were located on both sides of the lower Amudarya. Literature analysis shows that the right bank lands were mainly irrigated by unregulated waterworks, while most of the regulated waterworks existed on the left bank side.

These water structures can be divided into the following types:

1. Amudarya tributaries.

2. Canals receiving water from Amudarya.

The first group, that is, the tributaries of the Amudarya, occupied a large place in the irrigation system of the Khorezm oasis. The tributaries of the Amudarya are the natural irrigation facilities that were created in the lands of the Khiva Khanate without human intervention. They were formed as a result of river floods and these tributaries served as large canals. Water distribution structures have not been built by the population in the headwaters of these waterways. The tributaries flowed

parallel to the river, and in the language of the local population, they were called "Ayaqsalma" (it is considered a natural waterway, and it is said that the water flows naturally to the fields without human intervention [Shastal I., 1926:10]). If we dwell on these tributaries of the Amudarya, i.e., footpaths, it can be seen that they are as follows:

a) Tributaries starting from the left side of Amudarya:

1. Alabiya is a tributary of the Amudarya river starting from the left bank, its total length is approximately 21 km. This tributary flows through the undeveloped lands of the left bank of the river and gives life to these areas. Over time, these lands were appropriated by people and turned into farming and residential areas.

2. The total length of Kulabiya-Biya (*Kulabiya*) tributary is approximately 21 km. This tributary flows parallel to the Alabiya tributary one kilometer below it. According to Ya. Gulomov, this tributary was named Kulabiya after the Kulob tribe, which participated in the occupation of Khojayli by Khiva Khan Eltuzarkhan in 1802. The Kulabiya tributary flowed in a large network. Over time, large artificial waterways were built in place of its flow traces. After all, there is a need to develop the land on the foothills of the Amudarya and the vast areas through which its tributaries flow. In general, there is a higher possibility of development of areas where water networks have passed. Many small ditches are drawn from large rivers and canals to facilitate irrigation of cultivated fields.

3. The Kuv-Yazaq stream is one of the natural irrigation channels, it flows from the Kulabiya stream one verst below, in a parallel direction to Lavdon, and after 3 versts of length, it flows back into the Amudarya [Ivanin M., 1873:10], and this tributary also used most of the unexploited oasis in its time. supplied water to the regions. High yields of grain and agricultural products were obtained in the riverbanks, upper part of canals and waterlogged areas. For this reason, the population of the Khanate released water to more areas, and these lands were turned into agricultural settlements.

4. Lavdon tributary – flowed to the north-western regions of the khanate. It started about 36 km below the city of Kipchak. The total length of this tributary is approximately 100 km, and it flows into Lake Oibulghir. The Lavdon tributary was of great importance in supplying water to the cultivated fields in these areas.

5. Chumanoy tributary is one of the ancient tributaries of Amudarya, it started from the city of Khozhayli, about 30 km downstream. This tributary is one of the unregulated water facilities supplying water to the southwestern regions of the Khanate. Its flow ends in the swamps of Lake Oibulghir.

6. Kukdarya tributary is one of the ancient tributaries of the river, which started approximately 34 km above the city of Kungirot. Flowing through the surrounding sand dunes, it formed favorable lands for farming in the areas up to the swamps of Lake Oibulgir. Finally, it ended in the swamps of Lake Oibulgir.

7. Kiyatyarghan tributary – started about 40 km above the city of Kunghirot. Flowing in the North-West direction, it ends in the swamps of Lake Aibulghir. Later, a canal with the same name was dug from the Kyyatyorghan tributary. The Kiyatjargan (dug by the Qiyots) canal irrigated the cultivated fields in the Kiyat region, located in the Southeastern part of Kunghirat. According to Ya. Gulomov, by the 18th Century, the Kiyat clan formed a group with the Kunghirot clan and settled in the most fertile lands of Quygun with the Uzbek clans. The Kiyatyargan tributary and canal served as the main source of water for the representatives of this clan to engage in farming.

Lovdan, Chumanoy (Qiyotyargan) and Kukdarya tributaries supplied water to Lake Aybulgir and the Aral Sea. Of course, these tributaries of the Amudarya played a major role in the development of lands in these areas and turning them into arable fields;

b) Unregulated water structures starting from the right side of the Amudarya provided water mainly to the northeastern part of the territory of the Khiva Khanate and the Dovkara lake. D.I. Danilevski,

who came to Khiva during the reign of Allahquli Khan, writes that Dovkara is located on the left side of the Amudarya and, like Lake Aibulghir, is a lake formed from an old tributary of the river. These tributaries are:

1. Kukuzak (*the word "O'zak" was used in Khorazm to mean a tributary of the river that did not flow*) [Dusimov Z., 1985: 69] – it is also called as "Uzandaryo" in the sources. Its total length was 70 kms. During the reign of Khan of Khiva, Muhammad Amin, the Karakalpaks were officially migrated from the banks of this river to the Aral Sea. The Karakalpaks occupied Davkara lands located near Kukuzak and engaged in farming, but during the reign of Muhammad Rahimkhan I, they were forced to irrigate these lands and carry out farming operations with the permission of the Khan.

2. Karabayli tributary – it started from the Chumanoy tributary and 30 versts from Khozhayli city, flowed towards the northeast and finally flowed into Dau-Kara lake [Ivanin M., 1873:13]. This tributary was a natural waterway of the Amudarya and created the Qo'shqanottov oasis, one of the agricultural settlements of the local Uzbeks in the Northwest of present-day Chimboy.

3. Ulu-Darya tributary – supplied water to agricultural settlements in the north-western part of Khiva Khanate. After about 80 km, it splits into two directions and flows into the Aral Sea.

Scholar Ivanin, relying on the information of the Russian prisoners during his stay in Khiva, says that on the left bank of the Amudarya, in addition to the upper tributaries and canals, there were traces of the ancient flow of the Amudarya in two areas. The first one is between Ghazavot and Shahabad regions, and the inhabitants of Khanate say that this old tributary was called Daudon. The starting place of Daudon after the strata on the right bank of Amudarya is not determined. But V.V. Sinzerling says that it was located at the beginning of the Shahabad canal, and D.A. Arkhangelskyi says that it is located a little behind Yangi Urganch and Khanqa, 20 versts southeast of Chatkopir point

[Ghulomov Ya., 1957: 74]. A.V. Kaulbars believes that the Dovdon basin was used in the construction of Ghaziabad and Shahabad canals. The latter is located between the Yormish and Qilichniyozboy canals, and this tributary was called Krhna-Daryoliq. Both these tributaries flowed towards the west or the Caspian Sea. In the local sources of the Khanate period, it is said that Amudarya was divided into three main tributaries in its course. One of the old tributaries of the river is Shorkhachuv, which was considered the largest tributary during this period, for eight years, it flows westward, flows into Lake Okuz (Okuz is used in relation to the Amudarya) and goes 2 farsakhs to the Qunghirot region and flows into Kokhna-Darya. The second tributary is Qiyotyorghan, and it flows to the Southwest. A canal with the same name was dug in its dry place. The third tributary is the Ko'hna river, which flows through the middle of the Shorkochuv and Qiyatyorgan tributaries, in the area of the Qunghirot qal'a [Ivanin M., 1873:13]. Their traces are located far below the water level. During the high water in the Amudarya, the residents diverted the river water to these old stream tracks in order to prevent floods. According to the writings of Khiva Khan Abulgazi Khan, Amudarya flowed towards the Caspian Sea 250 years ago. Ya. Gulomov conducted scientific investigations on several tributaries of the Amudarya. According to his conclusions, the network flowing from the Amudarya to the Caspian Sea has separated. Dovdon was the dead end of this network.

Sarkravik and Loudon rivers can also be added to the old tributaries of the river [Ivanin M., 1873:13]. Ko'hna Urganch is located on the banks of the Old Sarkravik River. Its inhabitants irrigated their lands through this river and engaged in agriculture.

Natural irrigation facilities were mentioned above. Now let's talk about the artificial irrigation systems dug by the population for farming. Of course, such irrigation systems are considered regulated water facilities. We found it appropriate to divide them into groups.

a) Large channels starting from the left side of Amudarya.

Khiva Khanate's water supply network started from the canal system in Pitnak region. This system included Ulu-Kengli, Aq-Olan, Kichik-Kengli, Sayat, Manghit, Sayit, Shaykh, Yaki-Chiqir canals. Their total length was 10 kilometers. The longest of these canals is Ulu-Kengli. Its total length is 14 km. The smallest canal in this system is Mangit, its length is 1.5 km [Shastal I., 1926: 10-11].

1. The Sheikh-Arik canal started from the left bank of Amudarya and flowed much lower than Tuyamoin. Through this canal, mainly the plains of the Pitnak Beg are irrigated.

2. The total length of the Pitnak canal was more than 26 km. This canal is named so because it originates from the town of Pitnak. Through this canal, water was released to undeveloped lands in the Pitnak area, and cultivated fields were created there. It was poured into Ayokkol, one of the lakes in the territory of the khanate.

3. The Palvan canal received water directly from Amudarya. It started 14 km below the Pitnak irrigation system. The total length of the channel is 77 versts, the width of the stream in the upper part is 20 sargins, and at the end it is 5 sargins. Its depth is 1.5-2.5 fathoms [Masalsky V.I., 1913:747]. It flows in the north-west direction to the territory of Khanqa, and from there it turns to the South-West. This canal flowed up to the city of Khiva and ended in the sand dunes, supplying water to the agricultural fields of the Zai region (*the area inhabited by the Yamuts*). 40,000 people participated in the excavation of this canal. According to A. Abdurasulov, the Palvan ota canal flowed from East to West, the total length was 102 km [Abdurasulov A., 24]. According to the author, the channel received water from the river through 7 sokas. Its water transfer volume was 78 m3 per second. The canal mouth was 31 m wide and 2 m deep. I. Shastal said that 51 places of the canal were distributed to other irrigation networks. The total length of these irrigation networks was 913 km [Shastal I., 1926: 10].

The Palvanyap canal is divided into two large tributaries – Oqyap and Sirchali branches, in the North-Eastern part of the city, after a

distance of 300 meters from the city of Khiva. The Oqyap river flows outside the city and supplies water to the cultivated fields of the surrounding villages. The Khan gardens named Rafaniq, Nurullaboy, Nurullobek located in the Dishon fortress were watered through the Sirchali tributary. The Sirchali canal itself is divided into two tributaries from the center of the city of Khiva. These are Shikhlar and Khumboz tributaries, which in turn are divided into several small branches – "Salma". These small reservoirs supplied water to the lands of city households. Several small channels flowed from the left and right sides of the Polvan channel. Sundubiy, Ayoak-kol, Mukhamon, Kosa, Juvandir, Chakli, Shirmoli, Katay, Mastey, Tomi, Bogot, Naiman, Kungirot, Yangariq, Sheravot-sagt, Gumonbakh, Fernukhoz, Pishkenik, Chastyuba, Ingrik, Cherjeli canals, among others. On the right side of the Polvon canal: Besh-Yop, Zhertovi, Kuuz, Bolosultan canals flowed.

4. Ghazavot canal is the main canal receiving water from the left side of Amudarya [Masalski V.I., 1913: 747]. Its total length is approximately 100 km and consists of 3 branches. The banks of the canal were very wide, the width of each of them was 31 meters. The depth of the channel is 2 meters. This channel flowed along the north-west direction, 15 km below the Polvon channel. The water transfer volume of the Ghazovot canal was 116 m3 per second. Therefore, it was able to deliver twice as much water to the crop fields as compared to the Polvon canal. In addition to the river, the Ghazavot canal sometimes received water from the Polvan canal. Because the land irrigated through the Ghazavot canal was large. In particular, the inhabitants of the villages in Khanqa and Kushkupir used in agriculture. A number of artificial irrigation networks have been created from the Ghazavot canal by the people living in low-water areas. This created favorable conditions for farming in these areas. The Itim, Saliq, Kenez, Kenabad, Bendi canals flowing from the left side of Ghazavot are such channels created for farming. The Ghazavot canal is not divided into any branches until the 75th kilometer. So, up to 75 km there were few cultivated areas or pastures.

Exactly after the 75th kilometer, it is divided into two parts: Ulli-Yop (Ismomit-Yop), and Lar-Yop (Doudon). According to estimates, 42 different ditches and canals are directed to agricultural fields from the Ghazavot canal. The total length of all of them is 548 km long [Shastal I., 1926: 11]. The end of this channel ends in the lands of the Yamuts.

5. The Shahabad (Shovot) channel flows 18 km above the city of Yangi Urganch and 28 km below the Ghazavot channel. During the Khiva Khanate, this canal was one of the canals with the highest water turbidity. It has 5 cisterns, and its total water intake volume is 145 m3 per second. The total length of the canal is 160 km, the width of all its tributaries is 64 m, and the depth is 3.2 meters. The Shahabad canal was re-excavated in place of the Vadok canal dug by Khiva Khan Anusha Khan from the ancient dry tributary of the river in order to supply water to the lands of New Urganch city, Shavot, Jahontoy, Anbar, Tashavuz fortress and city, Ilonli (Zhilondi) areas on the left side. According to Q. Munirov's writings, this canal started from the Khanka area, made a sharp turn to the north-west from the city of Urganch, supplied water to Khanqa, Urganch, Shahabad, and Tashavuz regions and ended 6-7 km west of the city of Ilyali [Q. Munirov, 2002:103]. The date of its re-excavation corresponds to 1092, the Hijri date.

A kazak man Petr Maslov, who was a prisoner of the Khiva Khanate for 10 years, took part in the digging of the Shahabad canal. For every 200 people, an area of up to 50 sargins was allocated for digging the canal. Excavation of this canal continued in areas up to a distance of approximately 20 versts, that is, from the city of Shahabad to Ambar [Ivanin M., 1873: 53]. 40,000 people participated in the excavation of this canal, and the diggers changed their shifts every 5 days. During the search for the ancient tributaries of the river and their re-operation by the inhabitants, they also found suitable fields for farming and expanded their land. So, this channel flowed in the western direction to the city of Urganch, and from there it changed its direction to the north-west and supplied water to the cultivated fields in the Toshovuz region.

66 ditches were drawn from the Shahabad canal to supply water to cultivated fields in the south-western part of the khanate. Of course, these ditches are regulated water structures. The total length of the canals is 785 km. Small canals flowed from both sides of the Shavot canal, supplying water to extensive cultivated fields. In particular, the canals flowing from the left side: Yangi-Yorgan, Matnazar-Inoq, Arvah-Karashli canals. Canals flowing from the right side of the Shavot canal are: Almaniyoz, Yangi-Oyon, Tangri-Berdi-Kalmoq, Yusufbek, Obdol, Tosh-hovuz canals.

6. Yormish Canal is one of the largest regulated water structures. It also starts from Amudarya. This canal was dug again by Khiva Khan Anusha Khan in the place of the dried up old tributary of the river [Rakhmonova Yu., 2019:59]. Buva canal was dug in the place of this old tributary in the 10th Century. Later, this canal dried up and the surrounding fields were neglected due to lack of water. In order to bring water to these lands and settle the Turkmens, Khan rebuilds the Yormish Canal in place of the Buva Canal. The channel flows 21.2 km below the Shavot channel and 2 km below the Uyshun channel. This canal, which is 140 km long, provided water to the Uzbek and Turkmen lands that were part of the khanate along its route [Shastal I., 1926: 12]. Of course, water went to these lands from several canals with a total length of 230 km drawn from the Yormish Canal. Yormish channel is extremely wide. I.Ivanin wrote that its width was equal to 4-8 sargins at that time [Ivanin M., 1873:13]. This canal was completed at the border of the Oq-ko'l near the city of Ilyali [Munirov Q., 2002: 103]. On its left, the city of Kat was built and only Uzbeks settled in it. 8 km below the Yormish channel, the Qiyot-Qunghirot channel splits off.

7. The Qilichniyozboy canal is the main channel that supplies water to the lands of the Uzbeks and Turkmens living in the Khiva Khanate [Shastal I., 1926:12], the Buldumsoz fortress, and the territories of the city of Qilichniyozboy. Khan of Khiva, Muhammad Rahim Khan I, paid special attention to the construction of large irrigation networks and the

expansion of irrigated areas by strengthening the southern borders of the khanate. According to Ya. Gulomov, Muhammad Rahimkhan I excavated the Qilichniyozboy canal in 1815 to bring water to these lands. This canal supplied water to the dry lands located on the right bank of the Daryalyq, and the irrigated fields in the southern part of the khanate expanded. The Qilichniyozboy canal was named after one of the high-ranking courtiers of Muhammad Rahimkhan I. Its total length was 131 km and it flowed parallel to the Yormish channel. This channel was also divided into several branches, the total length of which was 210 km. The channel is finally divided into 2 parts. In the first flow direction, it flows to Chaghit Lake, and in the second direction to Alla-Ili Lake. Beshuyli from the left side of this main canal; Nukus, Gurlan, Yugur, Polvon-Bek [Danilevskii G.I., 1851:83], Kyzil-Alan canals [Ivanin M., 1873:9] flowed from the right side and created the basis for the development of agriculture in the surrounding villages.

8. Qorako'z canal – dug in 1808 by one of the leaders of the state, Davlat Karakuz, in order to further expand the cultivated areas and improve irrigation works. This channel was named Karakuz channel for its services. This channel is also called Yangiyap channel among the inhabitants of this land. Its total length is approximately 79 km, width is around 8-17 km. This channel started approximately 15-16 km above the Xitoy beklik. It supplied water to the Western regions of the Khanate. It stopped flowing in Porsu area. Due to the development of agriculture in the areas through which the Karakuz Canal flows, the city of Xitoy was later established on its right side.

9. Arna (Manghit arna) canal – was dug by the Khiva Khan Muhammad Rahimkhan in order to restore the Manghit kal'a and to release water to the agricultural fields in these lands after he established his rule in the vicinity of the island.

10. Basu canal also started from Amudarya. This canal, which has a total length of more than 42 km, starts about 5 km below the tributary of

the Arna and runs parallel to it. During the Khiva Khanate, this canal was not divided into any branches in its direction.

11. Suvoli canal – supplied water to the Northwestern part of the Khanate. This channel flows from the town of Khozhayli, about 7 km below. During this period, the majority of the undeveloped lands were in the northern and northwestern regions of the khanate. Therefore, regulated water facilities are directed to these parts of the khanate. Many types of crops that require a lot of water are grown on these lands. Suali, Kenagas, Tashli canals flowed from the left side of the Suvoli canal. These small industries penetrated more and more into the interior, creating favorable conditions for the establishment of large agricultural centers in these areas.

12. The Khan canal was dug in the second half of the 19th Century. This channel starts from Amudarya and flows 5 km above the city of Kunghirot. This canal supplied water to the Northern and Northwestern regions. In particular, it flows through the surroundings of Qunghirot city and created conditions for the development of certain branches of agriculture in these lands. In the villages around this canal, which has a total length of 20 km, mainly rice farming, and in the sand dunes formed by its riverbeds, it has led to the development of melon and melon cropes. According to the stories of the people who have been living in the Kunghirot area for a long time, Ko'nadaryo dried up twice in the last quarter of the 20th century, and a strong water network called Chulan appeared in its east. The water of Karabayli is also connected to the Chulan network. By the 80s of the XIX Century, the Karabayli canal was restored, but now it received water from the Chulan canal, not from the Amudarya. In addition to Karabayli, it is also known as Yovmutyop. The lower reaches of this channel flowed through the territory of the city of Kunghirot. This canal was built with the permission of Khan of Khiva, Muhammad Rahim Khan, so it was called Khanyop or Khan canal.

13. Begzhop or Begyap canal – according to the information of the Kunghirat people, it was first passed through the Toldiq tributary of the

Amudarya and flowed into the Aral Sea. In order to expand the cultivated areas in the territory of the Khanate, many irrigation networks were restored and built by the government officials. After all, officials themselves were the main earners from the harvest of agricultural products grown in these lands. Therefore, they attached great importance to the release of water to new undeveloped areas and the creation of conditions for farming there. In particular, the Begyop canal was also dug by Kushbegibek, Kunghirot Beg. In 1857, he was a senior official who surrounded Kungirot with strong fortifications. But according to other sources, mainly, the Begyap canal originally started from the south of Qoratov. Begzhop channel did not reach Qunghirot due to the blow of Shurkachuv. For 50 years (until 1946), the beginning part of Begzhop sometimes joined the Amudarya network, sometimes joined Khanyap [Arkhangelski A., 1931:144].

14. Kurdar channel. In 1602, the Kurdar canal was dug in the upper part of the Toq fortress by Arab Muhammad. Through this channel, it will be possible to irrigate large cultivated areas up to Kunghirot region. In the direction of this channel, it later formed a large current and flowed into the Aral Sea. After all, by the end of the 16th century, due to the fact that water did not reach cities like Urgench, Vazir, Adak, there were no conditions for farming in these lands. It was possible to plant and harvest crops only in places near the river. In particular, wheat was planted only in the Khuzhayli region. Therefore, there is a need to create favorable conditions for water supply and farming in the areas of the Khanate where there is no water. Of course, the construction of the Kurdar canal was the solution to the irrigation problems in these areas.

In addition to the above canals, there are many small and private canals in Khiva Khanate, which were dug to connect the lands of each landowner. Among them are Chachkan, Chostiq, Khanlik canals.

b) Main large channels flowing from the right side of Amudarya:

1. Shurakhan canal – irrigated the fields in the northern regions of the Khanate. According to M.I. Ivanin, this channel started from the city of

Pitnak, approximately 23 versts below, its total length is 45 versts. This channel was rebuilt in the place of the old riverbed of the Amudarya during the reign of Khans of Khiva Muhammad Rahim Khan I or Allah Quli Khan.

2. Naiman canal – was the main water network that irrigated the farming areas where the Naiman clan was located. This canal is called Naiman canal because it was dug by this clan. Its total length is about 21 km, it started about 10-11 km below the mouth of the Shurakhan canal and flowed parallel to it.

3. Uyghur canal – it also passed through the regions where the clans of the same name lived. Uyghur tribes settled in these lands and engaged in agriculture. This channel started from the mouth of the Shavot channel, approximately 6 versts above, and flowed northward. Its total length was approximately 28 versts.

4. Eltuzarkhan canal – received water directly from Shavat canal. It flowed in a direction parallel to the Uighur channel. Its total length was approximately 26 km. All these canals end up on the slopes of Sheikh Zhalil mountains.

6. Buzyap canal – in the first half of the 19th Century, it was restored in place of the dry Kat canal. Because by this time, there will be a need to release water to these areas and create new arable land. The main difference of the Buzyap Canal from the Qadimgi Kat (Ancient Kat, a historic city) canal is that it started directly from the Amudarya. This canal irrigates the vast cultivated fields located below the Akkamish forest and flows to the cultivated lands in the Kilich Inok area. It was the main channel that supplied water to the areas from Sho'rakhon to the foothills of Sultan Uwais Mountain.

The flow rate of these channels flowing from the right bank of Amudarya was very low.

Besides the main canals, small canals were also dug in Khiva Khanate to supply water to extensive cultivated fields. They were called arna. Urganch arna, Dolman arna, Uyghur arna, Uyshun arna are among

them [Shastal I., 1926:11]. These channels served to irrigate the high lands located on the right bank of Shahabad main canal. These canals flowed to Iskandar Baba, Sangar Lake, Daga, and Khan lakes.

Khanqa river flows between Ghazavot and Shahabad canals. The tributary started from the Amudarya and the flow rate was 30 m^3 per second, the total length of the channel was 23 km, width 10 m, depth 1 m, and it flowed from the East to the Northwest.

Chubolonchi canal (*arna*) – supplied the northern part of the Khanate with water. Its total length is 5 km. Due to the creation of very favorable conditions for farming in these lands, many people immigrated and began to settle.

Most of the cultivated fields in the territory of the khanate were irrigated from ninety arnas (water-ways/wells). Therefore, this channel had several small branches with a total length of 70 km flowing from the lower part. Yangi Yap, Vazir Yap, Karatol, Karakuz canals are among them.

Below the Karakuz canal, the next small canals starting from Amudarya are Manghit Arna and Buzsuv. The total length of the Mangit river was 60 km, and the total length of its tributaries was 152 km. The length of Bo'zsuv canal was 27 km. Both of these canals provided water to Uzbek, Karakalpak and Turkmen lands. Below the Buzsuv canal, only small canals irrigating the Turkmen lands flowed, namely Kovach, Meskhen, Kukhna Orol, Sughbet, Urus canals, and their total length was 90 km.

The canals that irrigate the Karakalpak lands within the Khiva Khanate are divided into two large groups. The first group included Khanyap, Lavzon, Yovmut, Katep, Eshonkhozha Yarmish, Suvanli canals, the second group included the Alikhozha lake system, Toldiq and Kirqyap canals. The Khanyop and Lavzon ditches, along with irrigating Karakalpak lands, were considered the main irrigation networks that supplied water to neighboring Turkmen lands as well. Uzbeks are mainly located along the banks of large canals and rivers and in all irrigated lands in the Khanate.

Over time, the names of the irrigation networks began to merge with the names of the clans that lived in this area. For example, the Suvanli canal was named Khojayli, the Otaliq canal was called Mang'it arna, and the Omonkuli canal was called Kenagas, after the name of the clan located along the canal. Among them are Kipchak, Kanghli Canal, Uyghur, Naiman Canal, Nukus Canal near Gurlan, Hizr Eli Canal (*located between Khazorasp and Gurlan*) and Bashkir clan canals located in the West of Lavzon. Along with the immense advantages of these main canals for Khanate agriculture, there were also dangers and considerable difficulties. In particular, during the spring and summer floods in the river, there have been many cases of crops dying due to lack of water due to the delay in the irrigation process due to the water washing away the saqa[2] part of the irrigation facilities. Therefore, the inhabitants of the khanate constantly monitored the banks of the canals.

There were many lakes in Khiva Khanate. Lakes were also very important in agriculture. They are especially widespread in the western and northern part of the khanate, from the cities of Kukhna Urganch and Khujaly to the Aral Sea. These lakes are connected to each other by tributaries, and they are formed by canals and waters flowing from the above-mentioned tributaries of Amudarya.

By the time of the Khiva Khanate, the social development of the peasants reached such a level that as the amount of natural flowing water decreased, the community members began to take measures to artificially bring water to their fields. As a result, the number of canals (*as in Egypt during the Middle Kingdom*) [Bazinera G., 1849: 282] legally increased. The head of the canals was pushed up and reached the river. This, in turn, led to a decrease in the number of channels in the khanate as a result of the merger of some small channels into a single main channel.

---

2 The soqa - is a technical term (a component/part of irrigation networks) used in the ancient traditional Khorazmian irrigation system.

The Khanate also has water networks designed to remove excess water sent to the fields, called "zakhkash" in the language of the local population. One of these rivers flows 14 km below Khiva and flows into Lake Kurp. Zakhkash is 12 km long, 11 m wide, and 4 m deep, and it was the largest main zakhkash in the Khanate.

Another river flowed between Qo'shkopir and Ghazavot regions, its total length was 5 km, and it flowed into Yasavulboshi lake.

In conclusion, it can be said that the multifaceted farming traditions of the Khiva Khanate were based on the experience accumulated over centuries. Over thousands of years, many experiences and methods of farming and observation of seasonal changes in the flora and fauna have led to the development of knowledge about farming even in difficult conditions. The low rainfall and hot climate created the basis for the widespread spread of productive irrigated agriculture with the help of a complex irrigation system. After all, the inhabitants of the Khiva Khanate used two types of irrigation facilities, that is, regulated and unregulated water facilities. The Khans made extensive use of traditional methods for digging new water networks, that is, they dug canals in place of the old tributaries of the river that had dried up.

Irrigation facilities in the Khiva Khanate were mainly of 2 types according to resource analysis: 1) regulated water facilities and 2) unregulated water facilities. The Khanate mainly irrigated the lands of the right bank of the Amudarya through regulated water structures, and most of the unregulated water structures irrigated the cultivated fields on the left bank side.

2.2. Irrigation Methods Based on the Age-old Experiences in the Agriculture of the Khiva Khanate

The main problem in the agriculture of Khiva Khanate was the provision of water to the population and the supply of water to the cultivated fields, i.e., irrigation. Issues such as construction of new canals, development of new lands, expansion of irrigation works were one of the main factors in determining the economic life and political

status of the khanate. Special attention is paid to these issues in the works of Abulghazi, Munis, Agahi.

As for the artificial irrigation, the rulers of Khorazm expanded the cultivated land by meeting the water needs of the fields. For this, they paid special attention to the construction of many irrigation networks. As we have seen above, many large canals were dug in the territory of the khanate in the XVI-XVIII Centuries. In particular, Toshli, Yarmish, Shahabad (*current Shavat canal*), Ghazavot and other main main canals continuously supplied water to the lands of the Khanate.

One of the main problems of the farmers of Khiva Khanate was water supply to the fields. Already, the main crop lands were located 1.5-2 m above the canals. The people of Khiva tried to solve this problem through the tracks they created. Based on the researches of M. V. Sazonova, it can be said that during the khanate period, irrigation works were mainly carried out in 2 ways, i.e., irrigation through "oyoqsuvlar" (footwells) and irrigation through "chighirs" [Sazonova M., 1952: 253, 258]. In the first method, the water itself flows into the field through the solms. Irrigation in this way was considered low cost because it did not require much labor. The second method was used in cases where the water level was lower than the level of the irrigated field. Irrigation through a well (a well is the simplest device for extracting water from a spring or underground [Abdullaev F.A., 1961: 123]) requires a lot of work and a lot of money. Because camels, oxen, horses and donkeys were used to move the tracks. One well driven by one healthy camel was capable of irrigating 1800 square meters of land to 3600 square meters of land in one day. S.K. Kondrashev and Ya. Ghulomov have information about this. They said that the speed of the pulley wheel rotates 265 times per hour, it can lift 20,000 liters of water and irrigate 3 tons of land. Working animals were alternately replaced during the work process so that they did not get exhausted and die. Naturally, this process led to overspending. From the main irrigation networks of the Khiva Khanate, 12,762 in the Polvan canal, 4,537 in the Shahabad canal,

and 1,905 chighirs[3] in the Kilichniyozboy canal were constantly circulating and releasing water.

The structure of the Khiva Khanate was as follows. A sprocket is a device consisting of large wooden wheels, the wheel of which is mounted horizontally and is driven by a camel, and the first wheel drives the second gear with its teeth. The second and third cogwheels are attached to the same axle, and on the third wheel are placed clay pots known as "digir" or (diyir – a tool attached to the chighir). When the wheels turned, these jugs in turn took water from the ditch and poured the water into the ditches through the wooden troughs. Water was brought to the fields.

The installation of the pipes in a large or small size, of course, is determined depending on the depth from which it receives water. O.Shkapski wrote that during his stay in Khiva, he was able to extract the largest stream of water from a 4 m deep ditch [Shkapski O., 1900: 18]. In the Khanate period, the wheels of such trains were 7-8 m high and made of wood. There are 32 earthen pots placed on the largest slats. Every 5 earthen pots could produce one bucket of water. It took a minute or a minute and a half to make one full revolution of the pulley wheel. In one complete rotation of the chighir, it was possible to receive water equal to the capacity of 6 or 9 buckets (*the capacity of water depended on the number of ceramic dishes and their size or smallness*). Camels were widely used to move a train of this size. Medium-sized culverts were used to extract water from ditches flowing from a depth of 3 m. The number of earthenware jugs mounted on medium-sized rings was up to 25 or 27. This sledge was able to produce 5 buckets of water per minute when driven by a horse, and two and a half buckets per minute when turned by an ox. The small channels were used to draw water from ditches with a depth of two meters. It has 15 earthen pots placed on both sides, 2 buckets of water are taken in 1 minute when it is completely rotated, and it is constantly moved by a donkey. The method of moving

[3] a machine/a tool designed to lift or move goods.

the track with donkeys was mainly used by poor farmers. Track wheels are attached to the necks of working animals by means of yokes. In order to protect the working animals and the track from the sun, the track is surrounded by a special canopy woven from reeds. Although in the Khiva Khanate there were three types of chighir, two of them – large and medium-sized chighir – were widely used. The animal moving the track is blindfolded with cloth. The track is not installed directly in the ditch. There was a few steps between them. At this distance, a trench was dug to be filled with water. Chighir got water from this ditch. This is a protection method, which is done to save the track during floods in the big canals. In order for the wheel to rotate well and quickly, the ceramic vessels in it were half-filled with water. If there was a lot of water in the chighir aryk, the chighir's rotation slowed down, tiring the animal driving it. That's why the canal that brings water to the chighir is opened when the chighir is working and closed at other times.

Repairing a broken chighir required a lot of hard work and time for the farmer, and it was even quite dangerous. In many cases, by the time a farmer repairs the chighir, his crops have died from the heat and lack of water.

Therefore, in the spring and summer months, due to having to irrigate a very large area, the mills worked non-stop and only the animals were changed. Even in the evening, the sound created by the frequent turning of the chighir and the pouring of water into the "zholobs"[4] could be heard.

Ya. Gulomov writes that irrigation networks in the Khiva Khanate are divided into river-soqa-arna-yop-badoqs and the "Ayak-salma", "Chighir-salma" or "Tartma".

The Arnas is considered to be the main main canal in Khorazm, some of them are almost as wide as Amudarya [Bregel Yu., 1961: 62].

In the Khanate of Khiva, many irrigation channels, called "Yap" in the local vernacular, were dug as another way to bring water to lands far

4 The "zhalobs" are the containers that function to keep water inside.

from the banks of the Amudarya. The yops were dug parallel to the Amudarya. O. In the works of Shkapski, it is written that the direction of the flow of the rivers flowed to the North-West like a river [Shkapski O., 1900: 41]. Badog are medium-sized ditches separated from the yops. Their width was equal to one meter. The depth of the yop is dug depending on whether or not it is irrigated through a channel, the slope of the place, and the width of the ditch. Of course, if the water in the reservoirs is pumped out to the fields with the help of an auger, it is dug deep. In order to prevent the part of Badoq from being washed away by water, special constructions known as doldarga (*doldarga is a simple structure made of hollow beams filled with straw or branches, which served as a dam at the mouth of the distribution canals*) were built. The solmas are basically self-flowing aryks that branch out from the bottom of the yops. In the Khanate, badoqs were often called also as solmas. The tortmas were a trench where water collected between the roofs. So, the water in the tortmas was poured into the gutter (salma) through the chighirs. The slope of the Khanate territory increases towards the Aral and Caspian rivers. Therefore, ditches and canals were dug depending on the slope of the land. Ditches and canals are dug to an average depth of 6-12 m. Small irrigation networks were dug at a depth of 12-24 m, and large irrigation networks were dug on a slope. The ditches dug into the territory were quite long. In particular, the Shorokhan stream was 30 versts long, and its branches were 12 versts long. Bozyop and Shirmonyop ditches were also 30 versts long. In general, the length of all irrigation networks was 516 versts [Shkapski O., 1900: 42]. In addition to the above-mentioned ditches, there were Meshekli, Betergen-Togay, Qurtli, Ak-Kamysh, Mis-Kentsent and Khoromchukur irrigation networks. 208 versts of the above-mentioned irrigation networks with a total length of 516 versts were made by the networks belonging to the Shorokhan-Yop irrigation system. In addition to the Shorokhan canal, 10 other large canals received water. The Shurakhan-Yap system served to irrigate almost half of cultivated land in Shurakhan and Turtkul districts, in particular, 28 thousand tanobs out of 48 thousand tanobs.

The rest of this irrigated land is irrigated through the upper irrigation canals. It is written that most of the irrigation networks in Shurakhan lands (12 out of 22 ditches) eventually formed lakes. We can say that the excess water was poured into these lakes at the end of the ditches or was absorbed into the sand in the desert parts of the region and created the ground for the emergence and development of flora that prevents sand dunes in desert areas. Also, the desert plants have a deep tap root system that keeps the sand layers firmly in place.

Irrigation expenses during the Khiva Khanate were 8.1 times higher than in the Farghana Valley and 9.4 times higher than in the Mirzachul region [Shastal I., 1926: 17]. In addition, the landowners had to spend a lot of money because they used the springs to irrigate their fields. If it is necessary to irrigate an average of 0.3 decimeters of land in one day with one plow, it took 3.3 days to irrigate one decimeter of land. If we take into account the requirement of 8 watering of the crops, we can see that the irrigation period lasted for 5 or 6 months, that is, from the middle of March to the end of September. So, 26.6 days per year were spent only for irrigation. Only alfalfa is planted in areas considered to be difficult to get water because of its low water demand. Thus, in order to irrigate their land with the help of a spring, the people of Khorazm worked 4 times more than the residents of other areas that are irrigated with water.

The banks of the big canals in the Khanate are completely used by the population. Since the Uzbeks were in power in the Khiva Khanate, they settled on the lands near the water, and the well-cultivated lands were also near the water. In the Uzbeks of Khorezm, due to lack of water, the uncultivated land area (*partov yerlar*) was on average 24.78%. Partov land in Turkmens corresponded to 46.67%, and in Karakalpaks to 49.03%. But such lands in the Turkmen and Karakalpaks are not cultivated because of the lack of water, but because of the abundance of water. Among the Uzbeks, there was one chigir for every 3.58 tenths of land, and one chigir for every 7.29 desyatinas of land for the Turkmens

[Shastal I., 1926:10]. So, the inhabitants of this land suffered not from lack of water, but from the lack of equipment and manpower to lift water from the river.

During the Khiva Khanate period, there were many large floods in the Amudarya and the river often changed its course, so it was very difficult for the common people to get water from the river. Especially at the beginning of March, the situation of rising water in the river was often observed. Experts have noted that during the Khanate period, the river floods three times a year. In particular, when April came, the first water rise was observed, and this process continued until the end of May or June. At the end of spring and the beginning of summer, the rising of water in the river from the banks was significantly influenced by the fact that at this time of the year, the planting of all crops in agriculture was completed, and irrigation works were somewhat reduced. By August and September, the water level in the river decreased again due to the start of the next crop irrigation process.

During the floods, the cultivated fields around the canals were also submerged and perished. It took a lot of time and labor to overcome the effects of the flood and to restore the fields for planting. This caused excessive costs for farmers. During the floods, mainly the lands of the lower reaches of the Amudarya, where lived Karakalpaks, suffered a lot of damage. The low level of the banks of the Amudarya River and the flat relief of the lands around the river have led to the flooding of this area during floods, and the destruction of pastures and cultivated fields. Therefore, the inhabitants of this land were forced to build embankments protecting them from floods. Due to the lack of specific technical regulations for the construction of these embankments, they were not strong and could hardly withstand the next floods. As a result, local residents built new dams every year, and in some cases 2-3 times a year, and this process caused excessive expenditure. The inhabitants of Khiva Khanate widely used special devices called “Vard” and “Navard” in order to strengthen the banks of the river during floods, to block canals and ditches from the necessary places. These devices were called

"uluk" in the Fergana oasis, "Karabura" in the Syrdarya and Tashkent valleys, and "Nughala" in the Surkhan oasis [Qabulov E., 2014: 128]. to make it, grass, gravel, and stones are placed between tree branches, and they are wrapped in several layers [Gulomov Ya. 271; Ashirov A., 2020:75]. The finished wards were rolled one after the other and lowered to the dam of the waterway.

The steady flow of water to the ditches depended on the increase or decrease in the amount of water in the river. In some cases, even small ditches were destroyed due to sudden rise of water. Because when the water rose in the river, it was not always possible to keep the water under the same control. For this purpose, special canals called bedrov were dug in the Khanate to return the excess water that flowed into the canals and streams to the river. So, the Khorazmian peasants not only struggled to get crops from the land, but also spent a lot of time fighting with Amudarya. The people of the Khanate were constantly struggling with the Amudarya. They are busy every year cleaning the large canals, rehabilitating and rebuilding large canal banks, restoring protective dams and rehabilitating waterways. Residents looked for ways to avoid flooding by effectively using the river's flow without building dams or changing the river bed to control the water in the streams and channels. So, in the years when the water is low, the upper banks of canals and ditches were used, and in the years when the water was more than the norm, the lower banks were used.

The high level of turbidity of the Amudarya water prevented the water from flowing evenly in the ditches and canals throughout the year. Even in many cases, the silt layer that has sunk into ditches and canals has had a dramatic impact on water flow and water velocity by mid-summer. This situation caused a number of difficulties in the field irrigation process. Farmers could not irrigate their fields well due to the decrease of water in the ditches during the summer months. At such times, they blocked the ditches supplying water to the field from certain distances. O. Shkapski wrote this situation as follows: "The ditch is

divided into three parts. Water is blocked from 4-5 places and water is collected in a certain part of the ditch. If the water accumulates in front of the farmer's paddy field, only that farmer will use the ditch. Thus, the farmers take turns watering their land. "Whoever has a lot of land will use water for a long time". Using such a method, the release of water to cultivated fields is called "asvak" [Gulomov Ya., 276].

In the Khiva Khanate, the common methods of releasing water from canals and large ditches to cultivated fields are called "Sepma", "Depma" and "Nova". In sepma irrigation, the field was sprinkled and irrigated using large shovels tied to wooden poles set in the ditch. If water is sprinkled with a shovel by a human hand, it is called "Sepma". With this method, it was possible to irrigate up to 0.05 g of land throughout the day. If the sepma is adapted to move with the feet, it is called "Depma". Farmers irrigated small fields by sprinkling or plowing. Irrigation of small areas using this method is still preserved in most of Kharezm.

Next – when watering in the "Nova" method, wooden novas were used. The covered side of the nova is placed at the head of the ditch, and the other uncovered side is placed in the field below the ditch. Irrigation of lands in this way was a little difficult for the farmer. Because the side of the nova that takes water from the ditch to the field had to be raised and lowered every time.

Digging large and small ditches to bring water to the field also required hard work. When digging ditches, farmers took into account the need to send the required amount of water to the field and retain the excess. A 3-4 meter long piece of wood was sawn in the middle, turned into a log, and a pipe (tube) was made by joining both parts. They made one hole on one side of the pipe and several holes on the other side. Such a device, which is used to release water from large ditches to small reservoirs, is called "to'qurtqa" in the vernacular. The rugs are made in different sizes depending on the size of the fillings. O. Shkapski wrote about it as follows, that is, if the solm is designed to irrigate 40 tanobs of

land, the circular diameter of the tub is 17 vershkovs, and if it is 150 tanovs, it is made as 37 vershkovs[5] [Shkapski O., 1900: 54-55]. The trough was widely used not only for conveying water, but also for distributing water at the beginning of the river. Another important aspect of the water distribution manhole is that it is made of wood and has 3 or 5 holes on the sides in a line. The bunds of this structure were installed at the beginning of the canal, and they were used only for water distribution and to pour the excess of the received water back into the canal. In this case, the required amount of water is taken from the ditch where the pipe is installed, and the surplus is thrown back into the ditch. This pit is placed at the junction of the big ditch and the small ditch, and the side with several holes is placed facing the big ditch. The reason was to keep the sand and sediments coming with the muddy water in the channel and not to transfer the sediments to the small stream. In this way, the required amount of water flowed continuously from the small stream to the river. This situation caused not only convenience for farmers, but also some inconveniences. That is, if the farmer neglected to constantly monitor the ditches, the water flowing under strong pressure could destroy the embankment. That's why the farmers have been regularly monitoring the stream heads and waterways.

During the time of water shortage in the Khiva Khanate, mirabs were entrusted with the work of preventing the occurrence of various conflicts. The Mirobs controlled the use of water in secondary ditches. In addition to the mirabs, there were ditch elders who controlled the use of water in both the main and secondary ditches. The common task of mirob (*m'rai – is the head of the diggers of water networks* [Abdullaev F.A., 122]) and the ditch elders was to determine the condition of the ditches or whether they need to be cleaned in time, and to organize the marshes. Thanks to the dedicated work of the supervisors, the ditches were kept in good condition throughout the year. Farmers hardly suffered from the problem of water shortage.

---

5 a unit of measurement.

In the Emirate of Bukhara, in addition to the mirab and arik guide, amin – (*the head of a ditch*) or juybor, arbob, ditch guard and mirza were involved in the control of water distribution. But some Russian researchers, including A. Kun, P.P. Ivanov, say that mirobes had nothing to do with ditches and water works [Yuldashev M., 1960:327]. In our opinion, the Russian authors must have come to such an opinion because the mirobs performed other tasks in the khanate after the irrigation season. As an example, we can mention that Munis and Ogahi were both court historians and mirabs at the same time. Mirobs were considered the closest and most trusted people of Khan. Mirobs were appointed by the khan from educated and respected people and their rank was considered equal to that of the prime minister. For this reason, the Khan entrusted the tasks of state importance to the mirabs. Mirobs were also given a salary by the Khan, and the amount of salary received by each mirob depended on his faithful service to the Khan. In particular, as Ogahi writes that Toghai mirob was rewarded with two hundred gold coins from the treasury of the Khan. Also, the sources show that after the death of Togay Mirab, his son Abduqodirbek was considered suitable for the position of mirab [Agahiy., 26]. So, we can say that in the Khiva khanate, in case of the death of the mirobs, their sons were also appointed to replace the fathers, and in some cases, the mirobs passed from father to son.

In the 19th Century, special ponds were also used to supply water to cultivated fields in Khiva Khanate. Such ponds were mainly dug by large zamindars and were built not only to irrigate the land, but also to store drinking water for backup purposes. We can list a few of these pools. For example, Chitkar pool and Polvon pool [Abdurasulov A., 1997:26]. Historical sources provide information about 14 pools in the city of Khiva during the Khanate period, namely, Ota-hovuz, Bogcha-hovuz, Chitkar-hovuz, Bolhovuz, Biy-hovuz, Chilla avliyo, Sultan zargar, Madaminkhan, Tort Shabboz, Abdal Baba, Bazar-hovuz, Dishon-hovuz. In general, digging ponds and ditches in the oasis has been one of the most meritorious deeds done for the sake of God. After all, the

representatives of the proud family tried not to be left out of this meritorious work, and in this way they managed to increase their ranks among the people. The surroundings of the pool were surrounded by elm, guzhum, and mulberry trees, and it was a cool, shady place, and it also served as a place for residents to relax. Of course, water was poured into these pools in the spring months and stored until late autumn. Water entered the ponds from one side and left from the other. Therefore, the pool water was always clean and drinkable. A. Abdurasulov gave the information that water was sent to Turt Shabbaz and Balkhavuz, located in the center of Khiva, through specially dug *gulbadavs* - the underground waterways.

The ponds are cleaned every year in early spring. All the people living nearby participated in the cleaning work. After the cleaning work was completed, elections were held by the residents, and food was served to the people. Every pond built in the Khiva Khanate had special inspectors who monitored the purity of the water and its constant filling. The Meshkobchis[6] were also engaged in continuously supplying water to the population in containers made of sheep or goat skin. In addition to the meshkobchis, there are also specially appointed cleaners who constantly check the purity of the water in the pools and prevent its pollution.

Another method of water use was introduced in the Khiva Khanate to prevent water shortages in the spring and ensure full supply of water to crop fields. That is, special ice rooms have been established. For example, in 1851-1855, Madamin Khan, who ruled Khiva, built a reservoir of water in an ice house in Nurullo Chitkar neighborhood. The residents collected the ice from these cane stalks and stored it in large ice houses until early spring [Abdurasulov A. 26]. In early spring, when there is a water shortage problem, the ice blocks stored in these ice houses are melted and used for irrigation of agricultural crops, consumption as drinking water and watering of livestock.

The inhabitants of the Khanate also used well water for farming. This irrigation method is necessary during the dry season. In the city of

6 Special person whose aim is to look after the water flows (author).

Khiva, in the Kutlugh Murad Inaq madrasa and near the Turt-Shabbas mosques, large wells, that is, tagzamins, were built [Kostenko L., 1873: 26], which were full of water in all four seasons of the year. These wells were one of the main water reserves that provided the residents of Khiva with drinking water during drought years. In addition to the use of wells as a source of drinking water, they were also used in agriculture for the purpose of irrigating land. So, farmers of Khorazm invented different ways of using water, and we can say that they are an incomparable mirab, and they have preserved farming traditions that are not found in other nations.

In the Khanate, the following methods were used to release water from both irrigation facilities to the field, that is, "sepma", "depma" and "nova" methods, as well as through chighirs driven by animal power.

In the Khanate of Khiva, the people responsible for the water system were mirobs and water elders. The form of payment for them was in the form of cash and was made at the expense of the Khan's treasury.

During the Khiva Khanate, local residents of the Khorazm oasis used natural resources rationally based on the climate and natural conditions, and paid great attention to the preservation of nature in land cultivation, on the basis of which they became skillful agriculturists in the field of land cultivation, artificial irrigation and crop cultivation.

Agricultural work in the Khiva Khanate developed mainly on the basis of ancient local traditions. At the same time, the ancient traditions specific to the northeastern regions of Central Asia – Eastern Turkestan, Yettisu, and Sirdardyo region – have an important place in the life of the oasis, as shown by the Turkic terms related to tillage and irrigation, such as "Atiz", "To'qirtqa".

During the Middle Ages in the Khiva Khanate dozens of toponyms were formed, especially many hydronyms associated with the nomadic tribes and clans of the Turkmen, Karakalpak and Uzbeks, such as Yovmut, Kunghirot, Naiman, Uyghur, Kenagas began to settle into a sedentary agricultural economies some of whom were nomadic herdsmen.

CHAPTER III
SIGNIFICANCE OF THE FOLK AGRICULTURAL CALENDAR, CEREMONIES AND BELIEFS IN THE SOCIAL LIFE OF THE PEOPLE OF THE KHIVA KHANATE IN THE 19th AND THE BEGINNING OF THE 20th CENTURIES

3.1. Implication of the Folk Calendar in the Agriculture of the Khiva Khanate and the Issues of its Impact on the Agricultural Development

The issue of time has always been important in the political, socio-economic way of life, economic and cultural type of the human society. As a result of the development of human mind, outlook and natural knowledge, annual calendars related to the moon, sun, zodiac signs, animals and phenological observations were created. As in the whole Eastern world, the people of the Khiva Khanate worked according to the calendars based on the long-term experience of their ancestors in their agricultural work, and they had their own agricultural calendars. According to H. Nazirova, there were several combinations of calendars in Khiva Khanate: in particular, Hijri year (only year or year and month names or year, month and days of the week), Turkish Muchal year, names of the months of Iranian Shamsiya constellations and folk calendars (Navruzi Kharezmshahi and Navruzi Sultani) were used. Also, the Khiva Khanate used the Turkish Muchal calendar, and the months in it were named as follows: ud (*cow*), bars (*tiger*), sukukkan (*rabbit*), naq (crocodile is now called fish), yilon (*snake*), yund (*horse*), sheep, monkey (*bijin*), chicken, dog and pig [Nazirova H., 2017:18]. According to this calendar, the beginning of the year began after the vernal equinox.

Among the works published in the Late 19th and Early 20th Centuries, Alibiy's views on the "jut yili", V.Gordlevski [Alibiy, 1903; Gordlevski V., 1911:439-444] In the collected information about the folk calendar used by the Ottoman Turks, conclusions are given about the solar year, names of the months, days of the week, folk signs, and the lunar calendar, and this information is of great importance for our research work.

Among the Khorazmians, the year after Islam was calculated by the Lunar system. The inhabitants of this area have memorized the names of the Moon addresses. The people of Khorazm divided the lunar addresses into 12 constellations and called them by different names in their language. The names of the seven luminaries are also given in Khorazmian, Arabic, Romanian, Persian, Syrian, Hebrew, and Hindi (*Later, those who knew the mood of tracking the addresses disappeared, writes Beruni*) [Beruni., 1968: 30].

Various legends about the history of the creation of this calendar have been preserved in the Kharezm region. For instance, there is one legend which says that when Adam was expelled from Paradise, Gabriel gave him a ring. This ring was divided into 12 hours and each hour was equal to one year. They were named after animals so that the years would not interfere with each other. Farming required the farmers of the oasis to be well-educated and experienced in all aspects, first of all, it was very important to be able to know how the weather will come, when the rainy days will start and when they will end, and how to choose the seeds to be planted. Also, knowledge of muchal played a big role in farming, farmers chose the types and varieties of crops depending on the coming of the year, and based on the characteristics of each animal, they assessed the beginning of the year. In particular, the year of the snake was very dry, there was almost no precipitation, and it was constantly blowing garmsel in the late spring and summer months. In winter, very cold and windy days were observed a lot. The year of the sheep is favorable and prosperous for farming [Tursunov C., Pardaev T.,

2006: 89]. In the year of the chicken and tiger, the harvest was abundant, and there was no famine, but in the year of the mouse, on the contrary, the harvest was reduced and there was a famine, because the mouse was a pest rodent and one of the main means of destroying the harvest. Analyzing through the sources, in the year of bars (tiger), a high harvest was obtained from almost all types of crops in the Khanate. In particular, the estates of Tashavuz, Ayvoncha, Siyot, Rafaniq, and Sirchali of the khanate produced high yields of wheat, corn, sesame, flax, mash, millet, rice, and cotton in the year of tiger [Yuldashev M., 158]. In the year of the fish, there was a lot of water in the river, and there was no drought. After all, the people of Khiva Khanate believed that the year of the fish would be a very fruitful year in agriculture.

As in all regions of Central Asia, the year in the Khiva Khanate was divided into seasons according to agricultural work. Also, in the Emirate of Bukhara, each season is divided into 4 parts: spring – hamal, savr, javzo; summer – saraton, asad, sunbula; fall – mezon, aqrab, qavs; winter – zhadiy, dalv, hut [Kislyakov I., 1947: 112]. Farmers plowed the land, planted, watered, cultivated and harvested crops according to these seasons. Farmers of Khiva divided the agricultural work they do throughout the year based on the seasons of the year. For example, while plowing and planting seeds in the field was done in early spring, irrigation of crops intensified in the middle and late spring. In the first month of summer, harvesting of the wheat crop planted in the fall and planting of second types of crops in the vacant wheat fields began. Due to the onset of warm days, the first floods were also observed in the period from early spring to early summer. Summer in Khorazm was very hot and dry. Such climatic conditions are a real test for oasis farmers. After all, they paid special attention to the care of crops in the summer months. Rice fields planted after wheat are continuously irrigated. Irrigation of vegetables and sugarcane crops was carried out very carefully. In summer, it is recommended not to water the crops in the middle of the day, but to water in the morning or in the evening

when it cools down. Because watering in hot weather has caused crops to dry out and weeds to grow more.

Due to the fact that the fate of Khorezm peasants is directly related to the Amudarya, the time of the big floods observed in the river and the return of water were calculated by the movement of the moon and the sun, and the position of the stars. Of course, the calendars related to Khorezm agriculture were created as a result of these observations. Over time, errors and shortcomings caused by the shift of days in these agricultural calendars have been corrected and perfected. After all, constellations and the location of planets are also phenomena related to astronomical concepts, and these phenomena have been studied by astrologers. Because the time intervals of the rising and setting of the moon and the sun have changed regularly. Of course, such corrections in the calendars had a significant impact on Khanate agriculture. After all, due to errors in the calendars, there was a shift in the seasons, and the spring planting period and the autumn harvest season changed. Due to the delay in sowing the crops, the crops were left unripe and the farmers were unable to pay the taxes due to the crops, and their farms were in ruins. In particular, according to Beruni's work, the beginning of the year coincided with the sign of Saraton, that is, June 21-22 [Beruni, 1968:67]. Due to the correction of errors in agricultural calendars, the year and months were shifted, and the beginning of the year coincided with the spring season. According to the writings of Omar Khayyam, the beginning of the year in his time coincided with March 14-16 [Umar Khayyam, 1990: 64]. The people engaged in agriculture were mainly interested in correcting the calendars. But some rulers were against correcting the calendars. For example, Yahya ibn Khalid forbade correcting calendars and believed that such corrections lead to disbelief, postpone Navruz, and go to paganism.

The creation of the first calendars in Khorazm dates back to the Zaraastrian period. In particular, during the pre-Islamic era, Khorezm people used the Zaraastrian, i.e., Avestan calendar. This calendar

consisted of 12 months and 30 days according to the sun and 5 additional days [Lobacheva N. 1986: 7]. This year's calculation was 5 hours less than the current astronomical time. The calendar has been adjusted by adding five additional days. For example, if we take Iran, every one hundred and twenty years, they added one extra month to make it thirteenth month, thus correcting the difference of five days that increased every year. According to Beruni, the names and days of the additional 13th month added after the last 12th month of the year were related to the names of the gods in the Avesta. Of course, the thirteenth day of the added month was celebrated by the peasants as a great holiday. On the occasion of this additional month, the rulers were exempted from taxes. In this period, people had a specific year calendar. This calendar was followed in agricultural work and daily life.

According to the information given in the sources of the Khanate period, it is written that the winter season in the Khorezm oasis lasted three months, the spring season lasted two and a half months, the summer season lasted five months (*from the middle of April to the middle of September*), and the autumn lasted two and a half months [Shkapski O., 1900: 10].

In all parts of Central Asia, the beginning of the year was calculated from the summer equinox before Islam, but in post-Islamic periods, the beginning of the year was calculated from the vernal equinox, i.e. March 21. Of course, the beginning of the year in Khorezm is determined by the time of planting seeds and starting farming. From March 22 to the end of April, the equinox between night and day time was broken, and on April 31, the length of the day exceeded 15 hours. The rising time of the sun is accelerating, and its hot temperature is reaching the earth more and more. Farmers called the month between March 22 and April 20 as Hamal sign. Due to the fact that this month has its own climatic conditions, there are various conclusions about it, collected by farmers based on long observations and experiences. Farmers started field work in Hamal month. This season, the first sowing of sesame has started.

Planting of vines, planting of vegetables and sugarcane crops is in full swing. N. Lobacheva writes that twenty-five days before Navruz, beans, sesame, and millet are sown in Kharezm region [Lobacheva N. 1986: 15]. People's calendar is based on natural phenomena. However, N. Lobacheva's information about the farming calendar, which was in effect during the khanate period, turns out to be a little wrong. Because he showed the beginning of the year as June 21-22 according to the calendar of Beruni's time and postponed Navruz and wrote that the above types of crops were planted twenty-five days before Navruz. After all, the days of planting crops have also changed due to the shift of days due to errors in calendars. So, according to the current calendar, from March 21 to mid-April, all crops were planted in Khiva Khanate. The spring grasses were plucked to the tune of music, and the yield of the coming year was predicted by the sprouting of the grasses. Many cases of inexperience in farming and horticulture were observed by the farmers without knowing the specific climatic conditions of this month, and as a result, they faced several difficulties throughout the year. In particular, the corn crop planted in the Khanate in 1891 did not fully ripen until the onset of cold days [Shkapski O., 1900: 32]. Of course, a peasant who made such a gross mistake in the Khiva Khanate was not considered a real peasant in the society, and his mistake was not forgiven. Therefore, before starting field work this season, it was tried to get advice from farmers and mirabs with great experience. Each village in the Khanate had its accountants, experienced, skilled farmers and mirobes [Snesarev G., 2018:213]. Every farmer, gardener and herdsman in the villages asked them for advice about the arrival of the year, weather changes, and in particular, the timing of work related to their profession. It is considered very important for the farmer to have warm weather in the month of Hamal. Hamal did not come in the same way every year, that is, if there is rain in one year, there is almost no precipitation in the following years. Because, although the average amount of precipitation is 50 mm, some years exceed it twice and even more, or on the contrary,

some years are completely dry, and there are many cases of quick drying of grain meadows.

Savr, the second month of the spring season, began on April 22, according to the Hijri calendar. This month lasts until May 21 and is named after the calf in Uzbek. The month of Saur also has its own climatic conditions, and it has been observed that the year comes with rain or no rain at all. In some years, there were cases of exceeding the norm of rainy days. In Khorazmian calendars, colds called "Shishayi savr" were often observed in this month. There were thunderstorms, very strong floods, sometimes hail. Of course, the reason why people say *"be afraid of the first, fifth and fifteenth of the month, if you go out, put on your winter coat"* is related to unexpected changes in the weather in this month. Farmers have also given great importance to climate changes in this season when planting cotton seeds. In Savar, the sun rose more and more, and gradually the days began to heat up. The grains planted in the fields have grown up to 10-15 cm by this month. Of course, the Amudarya river was overflowing this season. The old sages gave many advices about the weather and climate of this month based on their many years of experience and observations, and the farmers tried to plan their field work on this basis. The advanced farmers and gardeners who know how to do the work, cut the branches of the vine before it blooms in the second ten days of saur, make furrows in the fields, do the second weeding of the crops, and clean the crops from weeds. This month is also known as *"the month of patience"* by farmers. Because this season the vegetation of trees and plants is quite slow. By the end of the month, the vines blossomed, the cherry trees ripened, and the early ripening varieties of apricots began to color and ripen. An early-ripening variety of potatoes was harvested from the field crops planted in early spring. So, the flowering process of fruit trees and crops is completed in Savur month and they start to harvest.

The month of Javza lasted from May 22 to June 21 and was considered a real testing month for Khanate farmers. Cloudy days have

started in the first half of this month, and a lot of precipitation has been observed. The air temperature has become increasingly warm, rising from 24 degrees to 30-35 degrees, some years even up to 40 degrees [Narzikulov A., 1991:23]. In the last days of Javza, dry warm-cell winds came from the south, and until the end of May, many warm days were observed. Until the beginning of the 19th Century, the farmers of the areas, farms, and villages located near the rivers faced great difficulties in the field. With the onset of hot days, the water in the river has exceeded the norm. O.Shkapski wrote that floods are observed in Amudarya three times a year. In particular, there are reports that floods occurred in late May or early June, late June, early July, and late August. The main flood occurs in mid to late April or early May. During floods, the water in the river rose up to 0.5 or 1 meter. The floods continued till May and the water receded from the middle of May. Of course, even in the summer months, floods were observed in the river several times, and by autumn, the floods stopped. In some cases, water rise was also observed in winter. But these floods were much lower than in April. Strong currents and floods have washed away fields, cultivated fields and villages near the river. That's why people have been working all year round to strengthen the banks of rivers, dams of ditches, and renew old dams. Along the shores, the farmers built sepoys, i.e. dams made of wood and branches as a barrier. In the Khanate of Khiva, the fight against river floods became a national issue. That's why the farmers called *"Doroyi (Ertapishar is a variety of grapes, the large grains of which begin to turn red on the evening of June 21, the appearance of the grapevine, with the inclusion of Saraton"* [Narzikulov A., 1991: 24], the river water is a scourge, which means it's done".

In his work, Abu Rayhan Beruni touched on the times of rising river water. According to him, these periods of rising water were called in the local language *"blue reed sasi", "white fish", "star voice" and "forty pipes voice"*. The Forty Narrow Sound Flood occurred around June 25 and was considered the most powerful flood. When the time of this flood is

delayed, special, traditional religious ceremonies were held together with farmers, village elders and religious leaders. These ceremonies were held simultaneously in all regions of Khorazm based on the folk agricultural calendar. Religious scholars, intellectuals, elders, and monks gathered together and offered various sacrifices to the spirit of the river, and they chose cows and oxen for sacrifice [Ashirov A., 2020: 72]. In this month, the work in the field has intensified and the farmers have taken great responsibility to take good care of the crops. Farmers usually compared Javz to the month of Sagittarius, that is, they noticed that when Javz is hot, it is cold, and when Javz is cool and rainy, the air temperature in Kavs is much higher than normal. So, during this period, the farmers of the oasis were able to predict the arrival of the beginning month based on the characteristics of the ending month.

In the month of Saraton, the temperature was 40-45 degrees, sometimes even higher. Since this month coincides with summer solstice, it is also called summer solstice in the local vernacular (Chilla is the hottest or coldest forty days of the year [Yalli momo cult, 1997: 37-42]). Saraton chilla also caused a lot of damage to agriculture. In cultivated fields, pastures, and even endless cotton fields, where the heat often blows, and in the desert regions, there is an increase in girdibod (tuvarai). Sometimes in the morning and in the evening, a mirage appeared, and the rivers began to flood. Harmsel's hot wind and high-level air withered and destroyed all the crops in the field. After all, by this time, the sun rose to the highest point of the northern hemisphere and the shortest night and the shortest day were observed. A.Narzikulov writes in his researches that 4-5 days after the onset of Saraton, the sun moves southward, the nights become longer and the days begin to shorten, and the early grape variety can die [Narzikulov A., 1991: 24].

During the month, hot water, which is considered a necessary ointment for agricultural crops and cotton, filled the ditches. Of course, the harvest of autumn crops, which were not watered by the hot water

of the summer chilla, did not ripen well, and the possibility of getting a good harvest from them decreased, and the harvest became tasteless. But the farmers followed the long-standing rules of agriculture when watering crops in the summer chill.

Horticulture and policing crops begin to grow in the month of Saraton. This month was also a test month for gardeners. After all, if seedlings planted in spring do not dry up in the heat of cancer, the probability of their drying up during the year is reduced. According to historical literature, it is said that if the month of Cancer is good for farming, the month of winter is also good. If the grapes are watered in the month of Saraton, the grape harvest is blessed and its taste is very sweet. So, if the farmers work hard in this month and irrigate the crops on time, the possibility of getting a high yield from the fields in the fall has increased.

The month of Asad lasted from July 23 to August 22. In this month, the temperature has changed slightly compared to Cancer, in some years, the temperature has been slightly warmer and there have been windy days before the start of the month of Asad. Precipitation was also observed. Farmers knew well that if the last week of the month of Asad is dry, autumn will be good, and if desert birds – blackbirds fly in the sky in flocks in the second ten days of the month, then autumn will start early. Changes were observed in the time of day and night, and the day became longer than the night. The result of the hard work of farmers and gardeners filled the markets this month. Chillaki, bazar, doroi, karakishmish, vasarga, white raisin varieties of grapes and peaches, figs, apples, qaroli (*plums*) fruits are ripe. At the end of this month, the gardeners began to dry the grapes in the sun.

Gardeners and residents engaged in mulberry farming have done autumn grafting this month.

Potatoes, turnips, and corn were planted on the fields freed from the first harvest. In the month of Asad, the water in the rivers increased, while in the springs, on the contrary, the water began to decrease.

After the end of the month of Asad, the month of Sumbula began from August 23 to September 21, and this month was the harvest month for farmers. With the beginning of the month of Sumbula, the climate began to change, the duration of cloudy days increased and windy days began. The air temperature has dropped, and the temperature has dropped at night. The water level in springs and rivers has decreased significantly. After all, experienced farmers have emphasized that sumbula is an opportunity for spoiling between winter and summer, that it is necessary to use every day and every minute of it effectively, that when sumbula comes out, Santa Claus (or it is called as "Snow Grandpa" among local people) knocks on the door, warns of cold days, and the water stops in the river. In this month, the earth's temperature drops and the soil cools. The shortening of the day hastened, and with the setting of the sun, darkness quickly covered the surroundings. The average air temperature was around 18-20 degrees. This month, cotton fields were irrigated for the last time.

Farmers also called Sumbula the month of abundance. In the orchards, figs, grapes, pomegranates, apples and other fruits were ripe, and corn grains were ripening and ready to be harvested. After the fields are cleared of crops, they are plowed and prepared for planting for the next year. Experienced horticulturists tried to complete the picking of ripe grapes in the vineyards and drying them for raisin by the end of Asad. Because with the release of Sunbula, the rainy season began, and the rain caused the deterioration of the quality of the grapes. Corn, sorghum and other types of crops were collected on time and placed in winter warehouses. With the beginning of the month of Sumbula, the climatic conditions in the Khanate began to change, the duration of cloudy days increased, and the number of windy days increased. The air temperature has dropped, especially at night. The water level in springs and rivers has decreased. In this month, the temperature of the earth has decreased, the soil has cooled. Rainy days have begun. The days were getting shorter, and as the sun went down, the surroundings were quickly covered in darkness. The night sky was

bright and the stars were clear and crisp. The average air temperature was 18-20 degrees [Narzikulov A., 1991: 36].

The Mezon was the first month of autumn, which lasted from September 22 to October 20. Equinox day and night were observed in this month. The average temperature is around 16-20 degrees, and some years the temperature is warm or, on the contrary, cold. Until the end of the month, the days cooled sharply and rainy days continued. This month was also the month of harvest for farmers and gardeners. Farmers harvested the harvest from the field from Mezon to Aqrab without delay. Due to the beneficial properties of Mezon sun and wind, farmers harvested local fruits and vegetables (*melon-watermelon, pumpkin, carrot*) stored for the winter, mostly in Mezon wind. Gardeners prefer to harvest pomegranate fruits in the last days of Mezon month, because if they are harvested earlier, the seeds of late blooming fruits will not ripen well. The villagers cut vine and fig branches and buried them in the ground no later than this month. The land is plowed and made ready for irrigation. The sowing of autumn grain was not delayed from the month of Mezon, because the wheatgrass germinated quickly during the hot days of this month, and they grew to the required size before the onset of cold days and had a strong root in the ground. Therefore, the cold days of winter did not have a negative effect on wheat grass. The cotton crop is also fully harvested by the end of the benchmark.

Aqrab lasted from October 21 to November 18. Farmers continued to plow the land after harvesting the crops this month. In some years, there were cases of warm autumn, but in the second half of autumn, a sharp drop in temperature and snowfall were also observed. Experienced farmers of the oasis did not recommend planting wheat in the month of Mezon, because the wheat seeds germinated late, and the seeds that were soaked in the soil died when the ground froze. When the ground froze, the plowing was not of good quality, so the plowing work was finished before the ground froze. Of course, the seeds of insect pests in deeply plowed fields are destroyed by freezing of the ground.

During the month of Qaws, which lasts from November 19 to December 18, the water in the ground and ditches is frozen, and the surface of the plowed land is completely covered with frost. Towards the end of the month, heavy snowfall and strong winds from the north-west were observed. The average temperature was around 4-5 degrees. The plowed lands were irrigated this month. Of course, the vines and fruit trees saturated with water in Kavs did not dry out from lack of water even if the summer comes dry next year. So, the water seeped into the veins of vines and trees several meters deep, and the water seeped into the soil layer moved up during the summer months and kept moisture. The fruits of the trees are tight, and the fruit is less shed when ripe. After all, this month's irrigation has destroyed harmful insects, their seeds, and tree diseases. Livestock farms also prepare for winter this month.

The special features of the month of Zhadi, which lasts from December 19 to January 18, were also well known by experienced farmers. From December 22 to January 21 there was a winter cold. Chilla, with its cold days, froze the lands and further increased the soil fertility. During this month, the weather was bitterly cold at night, the sky was clear during the day, and there were almost no cloudy days. After all, the farmers of the oasis observed that if a circle forms around the moon in the clear sky in the evening, there will be no precipitation in the near future, the weather will be good during the day, but if such a circle forms around the sun during the day, it will soon rain. Average rainfall in Zhadi was 40 mm, air humidity was 72 percent, and some years the air temperature was 40 degrees and colder in the cold of winter. In this month too, there were several agricultural works performed by the farmers. Because for farmers, Zhadi was the main month that decided the fate of spring planting and autumn harvest. It was well known to the farmers of Khiva Khanate that deep plowed land in late autumn freezes hard in the cold of winter, improves the soil structure, increases productivity, destroys the seeds of insects and the roots of weeds. Local fertilizer or manure applied to fields before

plowing froze under the heavy snowfall this month, and as temperatures warmed, the snow and ice melted helped it to better absorb into the soil. Of course, under the influence of this, the softness and productivity of the land has increased by two or three times. The fate of the wheat fields planted in the fall also depended on the snow that fell in this month. Because the thick snow protected the wheat from frostbite. With the arrival of spring, this layer of snow melted and soaked up to the roots of the wheatgrass, and the long-term preservation of moisture in the soil did not require frequent watering of the wheatgrass. So, the more snow fell, the more useful it was for farming.

The month of Dalv, which lasts from January 19 to February 18, is considered a small chilla month for farmers. The average wind speed in Dalv was 2.2 meters per second, and the amount of precipitation was 43-45 mm. Khiva Khanate mirabs compared summer and winter, spring and autumn and foretold how the weather would come. For example, the summer is as dry and hot as the winter is, the temperature is 40-45 degrees from the tenth to the eighteenth of Cancer, and the same days of chilla are spent with snow, storms and severe frosts. Of course, predicting the weather in agriculture, comparing summer with winter, spring with autumn, required continuous monitoring of natural processes over the years. The reason is that the movement of the sun in space and its passing place have a great influence on the seasons and climate of this region. In the last days of the month, as the weather started to warm up, the farmers of Khorezm started preparing for the spring planting season. They have farm tools and seeds ready for planting. The fields were repeatedly fertilized, ditches, canals, ditches and waterways were dug. The gardeners rejuvenated the fruit trees in the gardens, trimmed and shaped their branches.

Hut lasted from February 19 to March 21. Strong winds that uproot trees have been observed frequently this month. Nowadays, such cases are rarely observed. In the last seven days of Hut, the period of "Ayyomi Azhuz", i.e. "Ajuz old woman's cold" began. The cold of Ayyomi Azhuz lasted for 7 days and happened before Navruz holiday. Abu Rayhan

Beruni, a scientist who lived thousands of years ago and studied the calendars of different peoples, gave some information about the seven-day cold of the old woman. He spoke about the winter month of Shubat and said that the first day of seven days of cold falls on the 26th day of Shubat and lasts for seven days [Barthold V., 1927: 95].

So, after those seven days, the cold receded and warm days began. The people of Khorezm called the seven-day cold of the old woman after the legendary queen. Mina is a woman of their kings, who drunkenly goes outside at night in thin clothes, falls asleep, and dies in the cold at night. People are surprised that the queen died of frostbite at night in the spring season, and consider this to be an unusual occurrence. By the time of Beruni, this holiday was celebrated in the middle of winter, because for many years leap years were not taken into account. Therefore, it was not possible to start farming at this time of the year. According to the sources, so that winter does not prevent the arrival of spring, the people of Khorezm used vaporized and incensed medicines on this day and the following days, and they made smoke and cooked food to ward off the harm of demons and evil spirits.

Among the local people, there are still legends about how this old woman said, *"hey, ninety (meaning winter), if I get angry, you'll be gone for a day"*. Pomegranates and figs, buried in the soil in the autumn, are opened from the soil. After all, as the days get warmer, the branches of these trees start to rot if they remain under the soil for a long time. The fields have been plowed and preparations for planting have begun. Of course, all agricultural holidays and ceremonies held before planting in the Khiva Khanate were celebrated in this month.

Calendars played an important role in the development of agriculture in the Khiva Khanate. In this matter, the mutual harmony of the local inhabitants of the oasis, Turkic (muchal), ancient Iranian (Zaraastrian) and Muslim (Arabic calendar) traditions is noticeable. The fact that the terms characteristic of the ancient Kharezm people continued to be used for thousands of years indicates that the local population has continuously established farming traditions inherited from their

ancestors. At the same time, a certain number of terms related to agriculture and artificial irrigation in this period belong to the developed Middle Ages, and a significant part of them goes back to the Old Turkic language. This shows that the role of the Turks in the life of the oasis was high.

3.2. Importance of Rituals, Beliefs and Legends Related to Farming in Social and Spiritual Life of the People of the Khiva Khanate

As in the whole Oriental (Eastern) world, in the Khiva Khanate in the Middle Ages, the traditions and customs related to farming played an important role in the daily life of the local people. We cannot imagine any type and period of farming without traditions. After all, there are many agricultural rituals from planting to harvesting, each of which has its own history. In this paragraph, we will talk about the beliefs, rituals, legends associated with agriculture existing in Khiva Khanate and their influence on the processes of stagnation, transformation and dynamics of agriculture in Khiva Khanate. In order to explain them more fully, we divide and analyze the customs and rituals performed in agriculture by dividing them into groups depending on the seasons. Of course, our analysis and data are based on sources and scientific literature.

1. Rituals and customs performed in spring related to farming and water;

2. Rituals and customs related to summer watering;

3. Rituals and customs related to autumn harvest;

4. Rituals and customs related to winter tillage.

According to the Avesta, in ancient times, rituals related to the calendar of the year, that is, gohandars, were divided into six groups. It is noted that these holidays are celebrated at a certain time of the year. Among them, the parts related to agriculture are as follows. The first is the holiday “Mayzyuyi zarimaya”, that is, the middle of spring, 41-45 days of the year, the second is “Mayizyuyi shima” – the middle of summer, 101-105 days of the year, the third is “Paytyash khahya” – the

harvest of grain, celebrated on 176-180 days of the year [Avesta, 2001: 310-316].

Most of the farming and water rituals celebrated in the Khiva Khanate coincided with the spring season. In order for farmers to start spring field work with good mood and energy, these ceremonies were widely celebrated in all regions of the khanate. In the Muslim world, the beginning of the year is March 21, i.e. Navruz (*Abu Rayhan Beruni wrote that it is considered the beginning of the year (Navruz); the first day of the month of Kh-r-v-dad is considered a new day celebrated in Arija-Suvan. According to scientists, this holiday was celebrated four thousand years ago was made, and earlier it was celebrated in the summer chill, that is, on June 21-22. In ancient Khorazm, Navruz was called "Novsorzhi". According to Beruni, in those days, the celebration of the holiday lasted for a month, and the first five days were counted for the kings. The king started Navruz and because the position of the peasants was very high, the tsar received them on the second five days of the month of Navruz and heard their prayers. During the Kharezmshahs, Navruz was raised to the level of a state holiday* [Beruni A., 1968:280]) because it coincided with the holiday of farming, rituals related to land and irrigation corresponded to this holiday, and it became customary to celebrate them on the eve of this holiday. Among them are the "Kazan Tuldi", "Red Flower Festival", "Darvishona", "First Egat", "Shokh Moylar", "Horse Saddling", "Hashar", and "Halinchak Flying" ceremonies held in Navruz related to agriculture.

Like other peoples of Central Asia, the people of the Khanate of Khiva are based on the calendar of the Eastern peoples when conducting traditional farming rituals. Spring agricultural work and associated spring rituals began with the transition of the sun from Pisces to Aries according to the local folk calendar. According to the current calendar, this process included the period from March 21 to April 21, and this month was called "Hamal". As in other regions of Central Asia [Qurbanov A., 2009:126], the inhabitants of the oasis performed rituals related to Bobo Dekhqon (a Central Asian farmer/landowner), who was considered the patron saint of farmers, and believed in his spiritual help.

Farmers believed that whatever spirit they started their field work at the beginning of the year, it would be done in the same order until the end of the year [Pokrovskaya R., 1983]. Also, on the eve of the holiday, they attached great importance to the abundance and variety of delicacies that were used to decorate the festive table for the arrival of auspicious year for farming, abundant harvest. Of course, on the festive table of the peasants there are spring dishes made of wheat, yachmin, millet, corn, sesame, bean bread and newly sprouted grass. These cattle represented the abundance of farming, but also gave strength to the farmers during the year-long arduous work process. According to the opinion of the Moldavian people, it was believed that any food that is not put on the Navruz table will lead to less food on the family table throughout the year [Tenishev A., 1991:75]. For this reason, they tried to attract all the delicacies to the festive table. This custom is widespread in all eastern nations and is preserved until today in our social life. In addition to the dishes, branches of various trees (*quince, pomegranate, zhida tree*) are placed in the middle of the table. On their leaves, it is customary to write sentences representing fertility, such as reproduction, wealth, happiness, abundance, and to put other wealth such as white dirhams and new dinars in seven containers [Lobacheva N. 1986:8]. Among the most sacred trees, mulberry, hawthorn, namatak were valued [Snesarev G., 192]. Triangular amulets are sewn from the dried fruits of the mulberry tree. Necklaces are made from seeds of almonds, pistachios, and pomegranates. Garlic, onion, frankincense, garmdori are put inside, and bags are sewn. Amulets for women are made from mulberry and pomegranate [Karomatov H., 2008:43]. These amulets were of high importance in the socio-economic lifestyle of this period. Because for farmers, the plants and trees mentioned above are symbols of fertility. Also, according to N. Lobacheva's information, there was a custom of giving the ruler a white bowl of almonds and coconuts [Lobacheva N. 1986: 8]. But in the Khiva Khanate, there was no production of aqqand and no cultivation of coconuts. Every year in the early spring, before starting field work, the farmers of the Khanate spread the seeds of grain

and leguminous crops (*rice, wheat, millet, barley, sorghum, mush, rye, mush* [Sarimsokov A., 2010:62]) on seven boards and sprinkled them with water. , who controlled the humidity. Depending on the germination of these seeds after a certain period of time, it was predicted by local catchudos that the coming year would be auspicious or inauspicious for the farmers. This process coincided with the day of the "Kazan Tuldi" ceremony [Sarimsakov A., 2010:63; 1990:119; Beruni A., 256]. Mirabs also predicted that it would be favorable for farming, depending on which animal of the year it corresponds to. About this, B. Sarimsakov and Sh. Turdimov write that March 21 is predicted depending on which day of the month and week it falls on, and which animal the new year corresponds to [Sarimsakov B., Turdimov Sh., 1990:34-35; Tenishev A. 1991:74-75]. Therefore, the mirobs and katkhudos of the Khanate were also engaged in determining whether the year would be auspicious or not, depending on the germination of seeds and many animal species. Based on the predictions made, recommendations were given to the peasants, and they were performed every year, perfected year by year, and became a habit.

One of the most beautiful holidays dedicated to agriculture is the "Red Flower" Festival (holiday) in Khorazm oasis. This holiday was widely celebrated in the territory of the Khanate. After all, the rituals of the "Red Flower Festival" are directly related to the belief in dying and awakening plants associated with ancient Oriental (Eastern) agriculture. Many red roses blooming in May have been planted by the residents on the banks of streams and water. This flower variety is a local variety of Khorazm oasis, it has a very pleasant sharp smell and blooms in bright red color. This flower variety was highly valued in Khanate. Farmers from Khorazm considered the day when the red flower opened to be "a hundred years old" and based on this day, they calculated the time of planting crops [Kilichev T., 1988:22]. Farmers began to plant the second type of crops exactly one hundred days after the opening of the red flower, that is, on May 13.

Khans of Khiva heard the people's complaints at the beginning of the season. They took pity on the people and canceled the executions. This process was also directly related to agricultural works and irrigation works in the country. After all, the labor of those pardoned prisoners and slaves was widely used in the year-round laborious farming and digging of irrigation networks.

Another ritual related to farming and irrigation in Khiva Khanate is Darvishona. It was also held mainly by farmers before the start of the planting season on the eve of Navruz. During the celebration of this ceremony, every year in early spring, two or three people go around all the houses in the villages and towns. A large table was prepared for the people from the blessings given by the representative of each household. Special meals were eaten, and prayers were recited by clan mirobs or katkhudos for a blessed, fertile and fruitful year.

Among the ceremonies held in the Khiva khanate in the spring, the "First Egat" [Snesarev G., 2018:214] ceremony has become a tradition. In performing this ceremony, the old farmers who have rich farming experience are the first to start harvesting the land plowed with plows. Of course, in this ceremony, the dough pies were cooked and smelt[7] at the beginning of the field. Through the habit of releasing work during hard agricultural work, the patron of the spirits of ancestors and farmers, the mythological figure of ancestor – Bobo Dekhkan felt that he was a substitute for the farmer.

Livestock also played an important role in Khan's agriculture. Livestock animals were the main labor force in plowing, pulling, and pumping water. Horses, oxen, donkeys and camels were widely used as means of labor. In "Avesta" the horse and ox are honored as sacred livestock [Isakov M., 2006:45]. In Kharezm farming, the traditional first double weighing ceremony held before the planting period was also of great importance. After all, getting an abundant harvest from agricultural crops planted in the fields in the fall depended on the timely

7 It is also called as "Is chiqarish" (ritual) according to traditional religious belief.

and high-quality performance of the spring planting season [Zhuraev M., 1966:24].

This ceremony, which is performed by farmers in early spring before plowing, is also called "*Shokh Moylar*". In this ceremony, linseed oil was smeared on the horns and yoke of the ox that was plowed in the fields for the first time [Ashirov A., 2007:133]. Freshly baked bread made of wheat flour was given to the oxen. In Khorazm, plowing the land using an ox plow was considered the main labor force and a symbol of productivity. As the inhabitants of the oasis considered the ox a symbol of fertility, they slaughtered it and poured its blood on the cultivated fields, believing that this would increase the fertility of the soil [Snesarev G., 2018: 299]. In the Khanate of Khiva, there was also a custom of sacrificing a bullock to the Amudarya in order to ensure a good harvest. Among Khorazm peasants, there were also traditional rituals related to turning over the land. For example, the farmers of this area considered plowing and planting crops on Mondays and Wednesdays to have an abundant harvest in autumn, and plowing and planting crops on other days of the week considered uncharacteristic and prohibited planting crops. They plowed the land to the north during the day and to the south in the evening [Leonid Pavlovik Potarov, 1995].

The people of Kharezm scattered the first handfuls of seeds scattered on the ground as food for the birds. K.Shaniyazov considered this custom to be related to ancient religious ideas [K. Shaniyazov, 1974:174].

"Saddling horse" ceremony was also held. Of course, this ceremony was of special importance for the peasants of the Khan period. Saddled and hand-trained horses were widely used to drive medium-sized sleds. In order to open up new cultivated areas in the territory of the khanate, many attempts were made to build water networks on undeveloped lands. This process is especially intense from the end of February to the beginning of March. At this time of the year, the population organizes big festivals. Because the digging of large water networks and the repair of ditches were carried out thanks to the joint work of the team. Before the digging of canals and ditches, the mirabs of this land prayed that

there would be plenty of water in the river, that the ditches would be filled with water, and that there would be an abundance of crops in the fields.

The khans of Khiva personally participated in the construction of canal banks and large canals, and the khanate had a custom of sacrificing an ox to the spirit of the river. In particular, it is mentioned in the sources that Allahkulikhan threw an ox as a sacrifice when the head of the Tashsoqa canal was re-excavated and water was released into it [Ashirov A., 2007: 73]. The khan himself was the first to start the excavation work, and the khan himself was the first to collect soil from the head of the canal. Ya. Gulomov also writes in his work that the khans left the palace every year at the beginning of March to start the construction work [Gulomov Ya., 274]. The organization of the Hashar and its rituals have become a tradition over time. The traditions of conducting these ceremonies have been preserved among the inhabitants of the oasis to this day. After the Hashar work was completed, a big feast was served to the people and there was entertainment.

In the early spring, the custom of flying in the gardens is one of the ancient rituals of all Turkic peoples [Mahmud Kashgari, 1963:390]. During the Khiva Khanate period, especially in the 18th-19th Centuries, the main reason for the large-scale celebration of spring ceremonies related to farming can be explained by the fact that the farming culture was of great importance in the preservation of the agricultural culture in the economic life of the people who suffered greatly from the internal feudal wars and external attacks of the Khanate in these centuries.

We will dwell on the rituals of "Rain Calling", "Vakhshangom" related to summer irrigation. In khanate agriculture, rituals and traditions related to summer irrigation have acquired an important social importance. After all, in the period before the creation of artificial water structures in oasis agriculture, and in the periods after that, farming depended on snow and rain falling from the sky. That's why ritual customs dedicated to summoning rain have emerged among the

inhabitants of this land. Of course, even in the 18th and 19th Centuries, such ceremonies and rituals related to water continued to be held among the farmers of the oasis. The prayers, wishes, and desires of the farmers, who prayed to the rain gods to send rain so that the crops would not dry up and perish in the heat of summer, were reflected in their simple actions and even in specially organized ceremonies.

In these ceremonies, people used the yada stone to call for rain by appealing to Sust. During this ceremony, old women sit in the middle of the crop fields and make loud noises by banging yada stones together, asking the Rain God[8] to send rain and save the crops from drought. From ancient times, the stone "Yada" or "Zhada" is considered a stone of rain, hail, snow, and storm in the Turkic peoples [Barthold V., 1927: 180]. Ibn al-Faqih, the 10th Century geographer, wrote about the properties of this stone [Ibn al-Faqih. 1939: 153]. Belief in the magical power of this stone was widespread among Turkic-speaking tribes and tribal associations (*Qarluqs, Ughuz*) in the 10th-13th Centuries. Its remnants persisted among the Turkic peoples (*Turkmen, Kyrgyz, Western Chinese Turks, and Kazan Tatars*) in the following centuries. The famous Russian scientist V.M. Zhirmunski writes in his work that bewitching the weather with magic tools is one of the oldest and most widespread shamanic customs among the Turkic peoples of Central Asia [Barthold V., 1927:95].

The summer season was considered the most difficult period of the Khanate farmers. After all, during this period, large fields of crops were lost due to lack of water. Farmers performed several rituals to protect their crops from the heat of summer and believed in the divine power of nature by performing these farming rituals. In particular, the ceremony of sprinkling water is one of them. This ceremony was held on hot summer days. The actions of this ceremony are performed by women in some places, and by men in other places. To celebrate it, a large doll was made according to the instructions of the old farmers. Then special

8 It was also called as "Sust Khotun" (according to Central Asian peoples' belief)

songs were sung, and the doll was carried through the fields and streets and entered the houses. B.Sarimsakov in his researches mentioned this ceremony. According to his writing, the participants entered the houses singing the song "Sust Khotin" and the owners of the houses greeted them with joy. They made a donation and sprinkled water over the doll. After the ceremony, a sacrifice was made [Sarimsakov B., 1986: 65-71]. In the year when there was good rain and snow in Khiva Khanli, the waters of Amudarya overflowed from the banks. Water seeped into the flooded fields and saved the crop from dying due to lack of water. If the year comes without rain and snow, drought begins and the crops in the fields die. The inhabitants were forced to leave their farming areas due to the lack of water and turning into a desert. That is why Khorezm peasants have been celebrating the rituals of sprinkling water and summoning rain since ancient times. Beruni also talked a lot about the customs dedicated to water in his work "Osor ul-Boqiya" (Monuments left by ancient peoples). According to the work, Vakhshangom was celebrated on the tenth day of the month of Isfandarmozhi, and its name was taken from the name of the angel representing Vakhsh and Jayhun water, and Khorazm peasants went to bathe in the Jayhun (ancient Amurdarya) river on this day. This custom is also present in the neighboring nations, especially the Iranians, who bathed in the waters of the Caspian Sea all day long and had fun. In the Middle Ages, the first manifestations of this ceremony known as "Vakhshangom" go back to the Zoroastrian religion. In particular, it is noted in the Avesta that the creation of the world is closely related to water, and also that the totem, i.e., the image of a bull, was of great importance in the creation of existence, and it is written that 55 types of grain and 12 types of medicinal plants appeared from the ox's body, and water gave life to these agricultural crops (*The Creation of the World as totems, the first bull, which is considered the beginning of existence, and its twin, Gayomart, are said to be the first man. That's why in Zoroastrian songs, this first bull and man were placed at the base of existence and perished due to the evil of Ahriman. 55 types of grain and 12 types of medicinal plants grew from the body of the bull*

and from the seeds of the offspring, a bull and a cow appeared, from which 272 types of animals were created. At first, Gopodshah represented the figure of the patron of cattle and the guardian of waters in Khorezm. Later, he was connected with the territory of Sugd and became Gopadshah, the ruler of the region of Gava. In the ring-seal found in the Amudarya treasure in Sogd, the bull-man – the name of the Amudarya deity Vakhshu is written on the image of Gopodshah. The term "Vakhshunvar" (from Greek − Oksiart) is also described in the Aramaic writing on gold coins [Karomatov H. 2008: 91]).

Like all Turkic peoples, we can see the reason for the deification of domestic animals in Khorazm peoples in their importance in agriculture. (*In the process of plowing the land, watering the fields and harvesting the crops, livestock were the main labor force*). Until the beginning of the 20th Century, as in all regions of Central Asia, the ox was considered to be of great importance in agricultural work as the main productive force in Khiva Khanate. Therefore, it was also considered as one of the symbols of fertility. Therefore, livestock is the main support of farmers.

We will dwell on the "Khirmon Party", "Mehrzhon", "Kavsan" and "Hakulla" ceremonies celebrated in autumn. Most of the festivals and rituals performed during the period of the Khiva Khanate, which have survived to our time, were celebrated during the autumn harvest. In particular, threshing wedding was celebrated in the autumn months after harvesting the ripened crops from the fields. N.P.Lobacheva writes that the threshing wedding is not one of the big public holidays, but rather one of the family rituals [Lobacheva N., 26]. The researcher gave a little wrong information that this ceremony is not a collective ceremony. The people of Khorezm widely celebrated the threshing wedding ceremony not only in a family form, but also in a collective way. In particular, they organized large fairs on the main streets and market squares of the Khiva Khanate, displaying agricultural products such as sweet, sugar melons, sugarcane products, and various fruits. The people ate and enjoyed these agricultural benefits. In this period, we can see that farming rituals gained great importance in the fact that there was a custom of donating a certain part of the harvest as a sacrifice when the year was fruitful.

Farmers also had the habit of sharing a certain part of the harvest with their close relatives and neighbors. These customs are called "Kavsan poyi" in the local language. Farmers even left some of the harvest in the field itself and on the branches of fruit trees for birds and other animals to overwinter. After all, these animals and birds, along with eating the crops left in the fields and gardens, also found the seeds of small rodents and worms (*These pests are the enemies of agriculture, and we discussed them in detail in the above paragraph – author*).

After harvesting the wheat crop in Khorezm, they blew it in the wind and cleaned it. On windless days, they held a special wind-calling ceremony to blow wheat. In the process of threshing the harvest, another ceremony was held − hakulla ceremony. For this purpose, the farmers drew a circle around the wheat threshing floor. Of course, this circle has a divine nature, and the people believed that people who harm the crop cannot pass through these circle lines and do not endanger the wheat harvest. During the ceremony, 4 tons of wheat were taken for donation from each of the threshing floors. The roots of this ritual also go back to Zoroastrian times. After all, in the "Avesta" it is written about a similar wheat cleaning ceremony. The difference of the mentioned ritual is that the wheat is not washed in the wind, but cleaned in water.

After working from early spring to autumn and getting tired of field work, the residents of the khanate held labor games [Rahimkulov K., 2012:4] when all the crops were harvested. Of course, the farmers were satisfied with the harvest and happily tried to reflect their hard labor processes through the rituals of these games and thereby created a good mood and a festive spirit among the people.

In the process of studying the foundation documents of the Khanate of Khiva, we witness the popularization of religious traditions related to agriculture during this period. These religious customs were very important for farmers. In particular, we see that the custom of the owners of the land to teach the Qur'anic surahs dedicated to the souls of their ancestors, instead of the harvest received from the farmers who

work the land on rent, has become widespread. Information given in document 1419 of the catalog of Khiva judicial documents of the XIX-XX centuries [Urunbaev A., Horikawa T., Fayziev T., Djuraeva G., Isogay K. 2001: No.1419], among them. In this waqf document, it is written that the tenants who use the waqf lands in the Khiva Khanate were forgiven of their debts, and for this they were ordered to recite Surah Fatiha of the Qur'an once and Surah Ikhlas three times, devoting themselves to the souls of their ancestors, every Friday of the week. After all, the mutawallis increased the number of laborers working on the land next year by waiving all debts by teaching the surahs of the Qur'an, and in the following year they received even more income from the land.

Winter does not mean rest or the end of farming for Khorezm peasants, on the contrary, winter is considered a season of hard preparation for spring field work. After all, every day of Khorezm farmer was equal to heroism. In the Khiva khanate, after the agricultural work was finished and the harvest was stored in the warehouses, the residents entered their warm houses and continued to perform rituals. One such ritual is called "Eating buttered bread". Eating buttered bread (patir) warmed the body and made it strong. He gave strength to farmers during winter work processes. Beruni also touched on this in his work, that is, he wrote that in the Khorezm people, on the first day of winter in the seventh month of the year, the ceremony of "Azdakon-khvar", that is, "Eating hot bread with butter" was held.

In the Khanate, there was also a custom of burning medicinal plants in the last month of winter. Of course, this type of plant is frankincense, and it grew in the territory of Khiva Khanate. These rituals were mainly performed during the days of Ayamuzhiz cold, that is, the seven-day cold of the old woman. There are different views and opinions about Ayamozhiz days. According to these data, there will be seven days of severe frosts in the last February of winter. Ayamuzhiz days are also known as "Mina Night" among the inhabitants of this land, named after the princess Mina who died while sleeping outside in light clothes at night.

The peasants of Khorezm considered land and water to be sacred and believed in them. Individuals who brought water to new areas and developed new cultivated fields were highly respected and trusted by the people. Of course, farming is also considered a sacred profession in Zaraastrianism. It is written in "Avesta" that it is necessary to love the earth as one loves a lover, to make the earth fertile and to plant seeds in it and turn it into a mother that gives abundant harvest. After all, these are the most important jobs, and the people's happiness depends on these fertile lands. In the "Avesta" it is said in the conversation between Zoroaster and Ahura Mazda, that is, when Zaraaster asked Ahuramazda what the most important law of the world was, he said that it was to plant the best, most excellent seeds.

Elements such as soil, rain, light, hot air, cold air, which are natural phenomena since ancient times, have created great opportunities for mankind to live as farmers, but people have not fully understood these processes. Therefore, all the changes that occur in nature seem mysterious and abstract to people, and an unnatural view of nature is formed.

Trees and plants are highly revered among Khorezmians. They decorated jewelry with pictures of various trees and plants. For example, a bracelet worn on the hand in Khorazm has survived to this day. These bracelets are decorated with pictures of barley grains.

In Khorezm, there was a belief that some types of trees and plants cause unpleasant conditions for farming, while some types have positive properties. In particular, some farmers had a negative reaction to zhiyda, na'matak, onion, bitter pepper and tobacco crops. For example, if onions and tobacco are planted on the ground, the land of this crop is considered impure and it is said that it will bring kulfat to the person who planted it. It was found that almost all regions of Khorazm region have this idea.

It is clear from the above rituals that the Khorezm people have a concept of norm in believing in every event, event and things. That is

why they were able to describe in detail the good and bad aspects of the traditions they worshiped and practiced. For example, jiida, mulberry trees, and mulberry plants have both positive and negative aspects. In Jiyida, mulberry trees and the namatak plant were considered to harbor evil forces and it was forbidden to sleep near them.

The trees and plants deified with their positive properties in Khorezm included mulberry, zhida (we talked about their negative aspect above), pomegranate, and melon from the polizi crops. A positive view of these types of trees and crops is directly related to their fertility. For example, juniper and mulberry trees bear fruit every year. Pomegranate tree grows well in any place where there is plenty of water. In Khorezm people, there are opinions that the goddess of agriculture, Anahita, appeared from the pomegranate due to its sweet and abundant grains. Melons were planted on the ground where tobacco and onions were planted. Because these two types of crops make the land impure, melons are planted in this field to purify the land, and the land becomes halal. The land could also be made halal with water, that is, if human bones came out of the ground during the process of overturning, then this land was considered impure and could be cultivated only after it was watered five times and made halal. In some places, such lands were furrowed, bordered and not irrigated for two or three years [Ashirov A. 141].

The people of the Central Asian Oases performed several agricultural rituals related to the phases of the moon. For example, when the sickle is lying on its back when the new Moon is visible, the weather is unfavorable, there are unexpected frosts and rains, if the crescent moon is vertical, there will be drought during the month, and when these conditions are observed, people will smoke in the houses. Between the new Moon and the old Moon, weather changes are observed and farming activities are planned according to these changes.

Various legends related to trees have been formed among the inhabitants of this area. In particular, the legend related to mulberry is

one of them, according to which a mulberry tree grew from a stick stuck in the ground and gave fruit all year round. One year there was a severe drought, all the crops withered and the people survived by eating only mulberry fruits. In the legend related to bread, which was the main food of the Khiva Khanate, evil spirits sweat and worry when the first wheat seeds are planted in the ground, when the harvest is harvested and the threshing machine is harvested, they start to cough more and more, they cry loudly when the cleaned wheat is taken out of the mill, and when it is closed as bread in the oven, everything completely disappears. is said to disappear. After all, among Khorezm people, bread is considered one of the means of driving evil forces.

Khiva Khanate also had legends about agriculture and water. In particular, one of the totems of the creation of the world in agriculture is the legend about the Semurg bird, the Tree of Life (*the tree of all seeds*). According to scholars, during the Islamic era, Senmurv was gradually replaced by Semurg, and he was depicted sitting on a ripe tree with drowned fruits. After the invasion of the Mongols, Semurg, which is called in the local language, was combined with the phoenix bird (*fin – xuan, fin*) on a tree that came from the eastern peoples [Karomatov N., 120]. In general, in Muslim countries, the bird-woman with a colorful tail is depicted in a very elegant style and is the guardian of the Tree of Life. By the Middle Ages, in the Islamic world, sphinxes, bird-women and the Tree of Life were united around one theme. For example, in the X-XII century Khorezm silver cup kept in the Hermitage, a woman-bird is depicted as a symbol of renewal of life and fertility in the form of a vine branch in her hand and branches around it.

Among the inhabitants of the Khanate, water is considered sacred [Ashirov A. 1968: 62; Sarimsakov B. 58; Watson P., 1980: 27]. Therefore, various legends related to him appeared among the people. One such legend is about Hubbi, the savior of Amudarya. According to him, a young man named Hubbi lived in Amudarya in ancient times. He catches fish with one hand and holds it to the sun with the other hand,

while the fish cooks in an instant. Hubby lived in the river for seven hundred years, catching fish and guarding the waters of the Amudarya. During these seven hundred years, no evil spirit, not even a mosquito, came close to the Amudarya. Hubby teaches people how to make boats, swim in the river and fish. The people were pleased with him for these works and lived in peace, but by the time of Jamshid, Hubbi suddenly disappeared. People thought that Hubbi was stolen by the water god, and they performed various rituals to return him, they sacrificed animals for the gods of the river waters. Hubby's mother Anbarona made a boat and used this boat to search for her son in the river for years and he also disappeared in the river. Hubby cried so much in grief that even the waters of Amudarya overflowed the banks. Residents living on the banks of the river say that they can still hear the voice of Anbar mother crying over her son. At such times, incense was made and the custom of making sacrifices arose, and this custom has been preserved to this day.

By the 18th-19th Centuries, legends related to the digging of irrigation stations in the territory of the khanate were also created. For example, in the legend related to the excavation of the Polvan Yop[9], an old man named Polvan pulled a line from the river with his stick to draw water from one of the villages in the Khanate. Water began to trickle from the trail left by the stick. Villagers complain about the lack of water flowing from the stick trail and say a wider dam is needed. It is quoted by the authors that Polvon-Ota told them that this river will one day turn into a big stream and the arable lands of the surrounding villages will be polluted due to the abundance of water [Khudayberganov K., 2012:135].

Here is another legend related to the patrons of water structures, irrigation system and farming in the Khiva Khanate. This legend is related to the Ghaziabad Canal, one of the largest canals of Khiva Khanate. According to him, water spirits (arangs) created a big flood in one of the tributaries of the river. A person living in one of these nearby

[9] The name of a canal.

villages who has a powerful incantation ability descends into the water to fight these evil spirits. After a while, the residents saw his lifeless body floating on the surface of the water and gave this waterway the name Ghazi, that is, a participant in the holy war.

From the above, it can be concluded that during the Khiva Khanate, religious issues were more reflected in their economic and cultural lifestyle. Syncretic religions are more practiced than the Islamic faith. This gave them more encouragement and motivation in their economic life.

The ceremonies related to farming that we have studied and analyzed, and the customs performed in them, gained importance in the socio-economic and political life of the peasants, who suffered severe depression and decline due to the political processes that took place in the khanate in the 18th-19th Centuries, conflicts within the country, and external attacks. "Kawsan Poyi", "Threshing Party", "Hakulla" ceremonies and traditions related to holding Hashar caused the development of love between farmers and their working together as a team, and the development of mutual cooperation between them.

The people of the Khanate were well aware that the processes occurring in nature are related to the changes in the phases of the moon, and therefore they consciously performed a number of rituals related to the phases of the moon.

The ceremonies related to agriculture, which we have studied and analyzed, and the customs performed in them, were of great importance in the socio-economic and political life of this period. "Kavsan Poyi", "Khirmon Tuyi", "Hakulla" ceremonies and traditions related to the celebration of the Hashar caused the development of kindness among people and their working together as a team.

CONCLUSIONS

As a result of the scientific analysis of the history of agricultural traditions of Khorezm during the Khiva Khanate period, based on historical sources and new archival data, the following conclusions were made:

There were different forms of land ownership in the Khanate, which consisted of state or royal land, estate land, waqf land, and until the beginning of the 19th Century, community land. This situation is common to the settled areas of the oasis suitable for irrigated agriculture – cities and villages, and the nomadic and semi-nomadic population of the Turkmen, Karakalpak and Uzbeks often use the land in the steppes and deserts around the oasis as a clan (tribe) property or common property. used.

In the settled areas of the Central Asian oases, the people of the Khanate of Khiva continued the traditions of ancient and medieval times and introduced some practices based on the requirements of their time. This situation is confirmed on the basis of many occurrences of Arabic, Turkic and Turkic-Mongolian words and terms along with old Khorezmian terms related to land properties, property ownership, land use, harvesting and their distribution during the Khanate period.

By the beginning of the 19th Century, as a result of the complete appropriation of communal lands by large landowners in the khanate, collective lands became part of the property lands and the collective land form was completely abolished. At the same time, as a result of the transition of nomadic Uzbek, Turkmen, Karakalpak clans, who once had a nomadic herding lifestyle, to a sedentary lifestyle and started to engage in farming, the need for arable and fertile land has increased. The resolution of the problems related to the settlement of these clans

and clans reached the level of the government, and in return for their services in the military affairs of the khanate, they were allocated land suitable for farming as a privilege. Due to the need for fertile land, new canals and ditches were dug, and attempts were made to solve the problems related to the farming of clan representatives who were moving to a settled life.

All types of crops suitable for the climate of Central Asia were grown in the agriculture of the Khiva Khanate at that time, and efforts were made to obtain a high yield from them. Based on local and international needs, the population paid a lot of attention to the cultivation of crops. In this matter, efforts were made to plant marketable crops, which led to a relative decrease of some fruits and vegetables, and an increase of some, which, in turn, led to the emergence of a number of socio-economic and ecological problems. In order to overcome such situations, farmers have tried to solve the problems using skills such as turning to local experiences in this matter, working in consultation with skilled farmers, establishing crop rotation, traditional fertilization and tillage.

In the Khanate of Khiva, the people responsible for the water system were mirobs and water elders. The form of payment for them was in the form of cash and was made at the expense of the khan's treasury. During this period, the local residents of the Khorezm oasis used natural resources wisely and paid great attention to the preservation of nature in land cultivation, based on the fact that they became adept farmers in farming, artificial irrigation and crop cultivation. For this purpose, in seasonal irrigation works, attention is paid to the condition of the land, the level of salinity or vice versa, the necessary fertilizers are applied to the land at the right time, and the methods of crop rotation are established. The main means of fertilizing the land for the farmers of the Khanate were scraps of old broken houses, animal, poultry and silkworm manure, sand, soil and ash, and using the above means, a new type of fertilizer was started to be prepared and sold. Also, the main problems of farmers in Khorezm agriculture are tillage, salt washing,

construction of irrigation facilities, repair of old ones, cleaning of canals and ditches, construction of dams to protect crops from floods around the river, and fighting with enemies that destroy crops.

Agricultural work in the Khiva Khanate developed mainly on the basis of ancient local traditions. At the same time, the ancient traditions of the northeastern regions of Central Asia – Eastern Turkistan, Yettisuv, and Sirdardyo basins – also played an important role in the life of the oasis, and the traditions of the settled Turks related to land cultivation and irrigation began to play an important role in the agriculture of the Khorezm oasis. As in the ancient and medieval times, during the Khiva Khanate period, a number of Turkic peoples and clans, some of which were nomadic herdsmen, began to move to a sedentary agricultural economy, and the nomadic clans of Turkmen, Karakalpaks and Uzbeks, such as Yovmut, Kiyat, Kunghirot, Naiman, Uyghur, Kenagas, settled in the oasis. Dozens of toponyms, especially many hydronyms, began to appear.

Agricultural issues in the Khiva Khanate have their own characteristics, farmers tried to improve their work tools, but the transition from simple work tools to complex ones was very difficult, and in the state management system of the Khanate, serious attention was not paid to the issues of improving and improving the quality of work tools, creating new types of durable work tools. However, this situation is not unique to the Khorezm oasis, but can be observed in Central Asia, in general, in the entire Islamic countries of the East, the opening of new sea routes related to international trade, the loss of the former vitality of the Silk Road trade destinations due to various reasons, and a certain depression of foreign trade and handicrafts in the region.

In such a situation, the organization of irrigation facilities in Khiva Khanate is given importance at the state level. The purpose of this was to provide comfort to Khorezm farmers, and canals were dug wide and shallow in the Khorezm region. The fact that the width and depth of the

canals were made with precise calculation in accordance with the cultivated fields can also be a proof of this. The main support of agriculture in the Khiva Khanate is artificial irrigation and improvement of artificial irrigation networks, digging of new channels, canals, ditches, construction of wells, springs, ponds and ice houses and the use of their water in agriculture, as well as the accumulated experience of the population in the economic life related to the prosperity of the people of Central Asia. it is obvious that it played a major role in the development of the society when it is analyzed scientifically in comparison with the farms of peoples living in other regions whose main economic activity is agriculture.

The political, social and economic changes that took place in the life of Khiva Khanate in the 20th Century led to the transformation of a number of calendar traditions and rituals and the decline in dynamics. The change of the local calendar caused the disappearance of some agricultural traditions. Calendars played an important role in the development of Khiva Khanate agriculture, in this matter the mutual harmony of the Turkic (muchal), ancient Iranian (Zaraastrian) and Islamic (Arabic calendar) traditions of the local residents of the oasis is evident. The fact that the terms characteristic of the ancient Khorazm people continued to be used for thousands of years indicates that the local population has continuously established farming traditions inherited from their ancestors. During this period, a certain number of terms related to agriculture and artificial irrigation belong to the developed Middle Ages, and a significant part of them goes back to the Old Turkic language. This was due to the high role of the Turks in the life of the oasis settlement.

The people of the Khanate were well aware that the processes occurring in nature are related to the changes in the phases of the moon, and therefore they consciously performed a number of rituals related to the phases of the moon. Rituals related to farming and the customs performed in them were of great importance in the social life of this

period. “Kavsan Poyi”, “Khirmon To‘yi”, “Hakulla” ceremonies and traditions related to the passing of the khashar caused the development of kindness among people and their work together as a team. During the Khiva Khanate, religious issues were more reflected in the economic and cultural lifestyle of the population.

Some of the changes that took place in the agriculture of the Khiva Khanate, their practical results, the presence or absence of innovations in the irrigation system, their impact on people's livelihoods, the increase in farming skills and knowledge, the factors, defects and consequences that had a negative impact on the development of agricultural agrotechnics are historical in their time. realities and the socio-political and ethno-cultural processes in the region.

LIST OF REFERENCES

I. Archives and Funds:

1. Archives of the Institute of Oriental Studies of the Academy of Sciences, fund 33, p. 2, v.1.
2. CARUz. Fund 125. List 2. Case 400-410.
3. Ichan Kal'a Fund of the Kharezm Region of the Republic of Uzbekistan. Waqf land documents. P.Q. 1375.
4. Ichan Qal'a Fund of the Khorazm Region of the Republic of Uzbekistan. Waqf land documents. P.Q.1385.

II. Sources:

1. Avesta. Historical literary monument (in Uzbek). Translation by Askar Mahkam. – Tashkent: Sharq, 2001. - 316 p.
2. Bahadirkhan A. Shajarai Turk. - Tashkent: Chulpon, 1992. - 192 p.
3. Barthold B. History of the Culture of Turkestan (in Russian). Sochinenia. Vol. II. Part. I. - L.: Izd. Akad. Nauk USSR, 1927. – 180 p.
4. Beruni. Asorul bakiya an-al kurun al-khaliya. Translation manuscript kept in AS of RUz. No.1171. - B. 432-440.
5. Beruni. Selected works. 1 roof. - Tashkent: Science, 1968. - 485 p.
6. Gilmersen G. Khiva v nyneshnem svoem sostoyanii. Vyp. Otechestvennye zapiski. 1840.
7. Girshfeld, Galkin. Voenno-statisticheskoe opisanie Khivinsky oazisa. Chast II. - Tashkent: Tipografiya shtaba Turkestanskogo voennogo okruga, 1903. - 271 p.
8. Gladyshev, Muravin. Train from Orska to Khiva and back. Sankt-Peterburg: Tipografiya ministerstva vnutrennix del, 1851. Chast 3. – C. 75.
9. Ivanin M. Khiva i reka Amu-Darya. - Saint-Petersburg: Tipografiya tovarishchestva "Obshchestvennaya pol'za", - No. 5, 1873. - 64 p.
10. Kostenko L. Khyvinskoe khanstvo v selkohozyaystvennom otnoshenii. Military collection. 1874. - No. 4.
11. Krause I. Khivinskie zemledeli. IIRGO. T. X. 1874. - #1. - P. 40-46.
12. Masalsky V.I. Russia. Polnoe geograficheskoe opisanie nashego otechestva. Turkestansky kray. - Tashkent: S.-Peterburg. Izdanie A.F. Devriena, 1913. frequent XI. - 747 p.

13. Mahmud bin Wali. More tain otnositelno doblestey blagorodnyx (geography). Vvedenie, perevod, primechaniya, indicator Akhmedova B.A. - Tashkent: Science, 1977. - 166 c.
14. Mahmoud Koshgari. Devonu dictionary-Turkish. - Tashkent: Science, 1963. 3 volumes. - 390 p.
15. Muravev N. Puteshestvie v' Turkmeniyu. Chast I. - Moscow: в tipografii Augusta Semena, 1822. -144 p.
16. Middendorf A.F. Essay Ferganskoy doliny. - SPb., 1882. - 489 p.
17. Nebolsin P. Essay on trade in Russia, Sredney Asia, Khivoi, Bukhara and Kokandom. - SPb., 1856. - 375 p.
18. Nashi neighbor v Sredney Azii. Khiva and Turkmenistan. - S.-Peterburg: Tipografiya tovarishchestva "Obshchestvennaya polza", No. 5, 1873. - 138 p.
19. Notice. Gulshan state. Volume 6. - Tashkent: Literary and Art Publishing House named after Gafur Ghulam, 1980. - 207 p.
20. Rukavkin D. Puteshestviya iz Orenburga v Khiv Samarskogo kuptsa Rukavkina, v 1753 godu. – Sankt-Peterburg: v' Tipografii ministerstva vnutrennix' del, 1840. – S. 79.
21. Omar Khayyam. Navruznoma. - Tashkent: Labor, 1990. - 78 p.
22. Urunbaev A., Horikawa T., Fayziev T., Djuraeva G., Isogay K. Catalog Khivinskikh kaziiskikh documents XIX – nachala XX vv. - Tashkent - Kyoto, 2001. - C. No. 117, 1268.
23. Vambery A. Essay Sredney Azii. - Moscow: Vostochnaya literatura, 1868. - 362 p.
24. Khiva ili geograficheskoe i statisticheskoe opisanie Khiva Khanstva. - Moscow: V Universitetskoy typografii, 1840. - 85 c.
25. Yuldashev M. Khiva state documents of the 19th century. Volume II. - Tashkent: Publishing House of the Academy of Sciences of the UzSSR, 1960. - 401b.
26. Shkapsky O. Essay of Amu-Darinskie. K agrarnomu voprosu na nijney Amu-Dare. - Tashkent: Tipo-Lithography, 1900. - 138 p.
27. Shkapsky O. Kak khivintsy vedut' polevoe hozyaystvo. - Moscow: Typography Tovarishchestva I.D. Sytina, 1900. - 61 p.

III. Books, collections and serial publications:

1. Abdullaev F.A. Kharezm dialects of the Uzbek language. - Tashkent: Publishing House of the Academy of Sciences of the Uzbek SSR, 1961. - 334 p.
2. Abduraimov M. Ocherki agrarnykh atnosheniy v Bukharskom khanstve v XVI - first half of the XIX century. T. 1. - Tashkent: Science, 1966. - S. 233.

3. Abdurasulov A. Khiva. - Tashkent: Uzbekistan, 1997. - 142 p.
4. Abdurasulov U. K voprosu o klassifikatsii zemelnogo fonda Khivinsky Khanstva (second half of XVII - XIX centuries) // History of Uzbekistan. - Tashkent, 2006. - No. 2-3. - B. 83-89.
5. Abdurasulov U. Tayny Khivinsky dvora: politicheskaya borba v Khive v period Rossiyskogo protectorata // Vostok Svyshe. Dukhovny, literary and historical magazine. Vypusk XXXVIII. - No. 3, July-September. - T., 2015. - S. 38-56.
6. Arkhangelsky A. Geologicheskie issledovaniya v nizovyakh Amu-Dari. - M.-L., 1931. - C. 144.
7. Aitmambetov D. Culture of the Kyrgyz people in the 2nd half of the 19th - late 20th centuries. - Frunze, 1967. - C.190 - 193.
8. Ashirov A. Ancient beliefs and rituals of the Uzbek people. - Tashkent: Publishing House of the National Library of Uzbekistan named after Alisher Navoi, 2007. - 272 p.
9. Ashirov A. Water in Uzbek culture. - Tashkent: Akademnashr, 2020. - 239 p.
10. Allaeva N. Diplomacy and trade relations of the Khanate of Khiva (XVI century). - Tashkent: Akademnashr, 2019. - 496 p.
11. Bazinera G. Puteshestvie cherez Kyrgyzskuyu steppe v Khivu 1842 godu s Danilevski // Izvestia RGO. Vyp 5. – SPb., 1849. – C. 282.
12. Basilov V. O turkmenskom pire dojdya "Barkut-baba" // Soviet ethnography, 1963. - No. 3. - C. 12-30.
13. Bayalieva T. Do islamskie verovaniya i ix perezhitki u kirgizov. - Frunze: Izdatelstvo "Ilm", 1972. - 170 c.
14. Bejkovich A.S. Istoriko - etnograficheskie osobennosti Kirgizskogo zemledeliya // Ocherki po istorii hozyaystva narodov Sredney Azii i Kazakhstan. - L., 1973. - C. 32-69.
15. Berdimuratov A., Samibaev M. The resulting raskopok temple is Djartepa II // IMKU. Vyp. 26. 1992.
16. Boriev O. Scenes from the history of Nowruz. - Tashkent: Uzbekistan, 1990. - 64 p.
17. Dusimov Z. Toponyms of Khorezm. - Tashkent: Science, 1985. - 103 p.
18. Yakubov Q. Foundation economy of Madrasa Muhammed Rahimkhan II: administrative management, structure and economy // History of Uzbekistan, 3/2015. - B. 13–20.
19. Firstein L. Zemledelcheskie orudiya tajikov i uzbekov po materialam MAE // Sbornik MAE, 1970. T. 26. – C. 143-200.

20. Gordlevsky V. Materials for the Ottoman national calendar // Jivaya starina. 1911. - SP. vyp. III-IV. - C. 439-444.
21. Gulyamov Ya. History of Oroshenia Khorezma s drevney¬shikh vremen do nashikh dney. - Tashkent: Izdatelstvo Akademii Nauk Uzbekskoy SSR, 1957. - 323 p.
22. Ibn al-Faqih. Kitab akhbar al-buldan // Materialy po istorii Turkmen i Turkmenii. T. I. - M.-L., 1939. - C. 153.
23. Itina A., Rapoport Yu.A., Sycheva N.S. Kultura i iskusstvo drevnego Khorezma. - Moscow: Nauka, 1981. - 274 p.
24. Ivanov P. Iz oblasti sredneaziatskoi hozyaystvennoy terminologii // Izvestia ANSSR. Otdelenie obshchestvennyx nauk, 1935. - No. 8. - S. 750-751.
25. Ishakov M. Livestock and herdsmen in Avesta // Historical roots and modern processes of farming culture in the territory of Uzbekistan. - Tashkent, 2006. - B. 45.
26. Jalilov O. From the history of Karakalpak at the beginning of XIX-XX centuries. - Tashkent: Science, 1986. - 144 p.
27. Jabbarov I. Ethnography of the Uzbek people. - Tashkent: Teacher, 1994. - 312 p.
28. Joraev M. In the system of Uzbek folk agrarian rituals, "horn oils" or "first double" ceremony // Historical roots of farming culture and modern processes in the territory of Uzbekistan. Proceedings of the 37th meeting of the republican scientific seminar named after Academician Ya. Gulomov. - Tashkent, 2006. - B. 83-90.
29. Kun A. Ocherki Shakhrisabzskogo bekstva // ZRGO. T. VI. - SPb., 1880. - S. 220.
30. Karomatov H. History of Mozai beliefs in Uzbekistan. - Tashkent: Literary and Art Publishing House named after Gafur Ghulam, 2008. - 664 p.
31. Karmysheva Dj. Zemledelcheskaya obryadnost u kazakov // Drevnie obryady verovaniya i kultury narodov Sredney Azii. - Moscow: Nauka, 1986. - C. 47-70.
32. Kdyrniyazov M. Material culture of the city of Khorezma in the XIII-XV centuries. - Nukus: Karakalpakstan, 1989. - 178 p.
33. Kislyakov N. Starinnye priyomy zemledelcheskoy tekhniki i obryady, svyazannye s zemledeliem, u tajikov pooleina reki Hingou // Soviet ethnography, 1947. - No. 1. - S. 108-125.
34. Lobacheva N. K istorii calendarnykh obryadov u zemledeltsev Sredney Asia // Drevnie obryady verovaniya i kulty narodov Sredney Asia. - Moscow: Nauka, 1986. - C. 7.

35. Magidovich I. Natsionalnyi sostav Khorezmskoy oblasti // Territoriya i naselenie Bukhari i Khorezma. - Tashkent: Izd. Komissii po rayonirovaniyu Sredney Azii, 1926. - C. 29-116.
36. Munirov Q. Historical works of Munis, Aghahi and Bayani. - Tashkent: Publishing House of the Academy of Sciences of the Uzbek SSR, 1960. - B. 11.
37. Muhammad Ali Khan Gafur. Khorezm travel diaries. - Tashkent: New age generation, 2009. - 235 p.
38. Narzikulov A. Calendar of farmers, gardeners and breeders. - Tashkent: Labor, 1991. - 62 p.
39. Nazirova H. The use of the Hijri calculation in the Khiva chronicles of the XIX century // History of Uzbekistan, 2017. - No. 4. - B. 15-25.
40. Nurjanov K., Khojaniozov G'. Amudarya. - Tashkent, 2004. - 86 p.
41. Otamurodova A., Abdurahmanov O. Ambassadors of Khiva. - Tashkent: Wing of Thought, 2015. - 303 p.
42. Otetileuov Q., Khudaiberganov K. Father Khiva Becket Museum. - Urganch: Khorezm, 2014. - 156 p.
43. Pokrovskaya R. Zemledelcheskaya obryadnost // Kalendarnye obichai i obryady v stranax zarubejnoy Evropy: Istoricheskie korni i razvitie obychaev. - Moscow, 1983.
44. Kilichev T. Khorezm People's Theater. - Tashkent: Literary and Art Publishing House named after Gafur Ghulam, 1988. - 180 p.
45. Koshjanov O., Polvonov N. Socio-political processes and actions in Khorezm (second half of the 19th century - first quarter of the 20th century). - Tashkent: ABU MATBUOT-CONSALT, 2007. - B. 138.
46. Rahimkulov K. National action games. (Study guide). - Tashkent: Tafakkur-bostoni, 2012. - 65 p.
47. Rahmonova Yu. Scenes from the history of Khiva. - Tashkent: Akademnashr, 2019. - 244 p.
48. Rahmonova Yu., Kamalova N. Armini Vamberi – issledovatel Tsentralnoy Azii // Molodoy uchyonyy, 2014. Chast 7. – S. 577-578.
49. Rahmonova Yu., Kamalova N. Osnovnye otrasli ekonomiki goroda Khyvy i ix razvitie vo zaimosvyazi v 16 - nachale 20 veka // Molodoy uchyonyy, 2014. Chast 7. - S. 578-580.
50. Sobolev L. Geograficheskie i statisticheskie svedeniya o Zerafshanskom okruge. С приложением spiska naselyonnyx mest okruga // ZRGO po otdeleniyu statistiki. T. IV. - SPb., 1874. - S. 9.

51. Sazonova M. Materialy k istorii zemledelcheskoy technical in Khorezme. Archeological and ethnographic works Khorezmskoy expedition 1945-1948. - Moscow: Izdatelstvo Akademii nauk SSSR, 1952. Chapter I. - 671 p.
52. Sarimsakov B. Folklore of Uzbek rituals. - Tashkent: Science, 1986. - B. 71.
53. Sarimsakov B., Turdimov Sh. An ancient holiday of our nation. - Tashkent, 1990. - No. 3. - B. 34-35.
54. Snesarev G.P. Relikty domusulmanskikh verovaniy i obryadov u uzbekov Khorezma. - Moscow: Nauka, 1969. - 336 p.
55. Snesarev G.P. Obryad jertvoprinosheniya vody u uzbekov geneticheskoy svyazannyy s drevnim cultom plodorodie // MXE. - Moscow, 1960. Vyp. 4. – C. 198-202.
56. Snesarev G. Ceremonies and customs of the people of Khorezm before Islam / translated by S.R. Ro'zimboy. - Urganch: Mangulik Jamoli, 2018. - 348 p.
57. Tenishev A. Prazdnovanie Nevruza i khydyrelleza v Turtsii (konets XIX – seridina XX c.) // SE. 1991. - No. 6. - C. 74-75.
58. Tursunov C., Pardaev T. and others. History and culture of Uzbekistan - ethnography of Surkhandarya. - Tashkent: National Library of Uzbekistan, 2006. - 276 p.
59. Vakfnaya gramota 1778 goda kak istochnik po izucheniyu agrarnykh otnosheniy v Khivinsky Khanstve // History of Uzbekistan. -Tashkent, 2006. - No. 3.
60. Khudaiberganov K. Khiva is the oldest fortress in the world. - Tashkent, 2012. - 348 p.
61. Yalli momo cult // Uzbek language and literature. - Tashkent, 1997. - No. 2. - B. 37-42.
62. Yuldashev M. Istorii kristyan XIX century. - Tashkent: Science, 1966. - S. 37.
63. Yuldashev M. Feudal land ownership and state structure in Khiva Khanate. - Tashkent: State Publishing House of the Uzbek SSR, 1959. - 337 p.
64. Ziyaev H. Central Asia and the Urals in the 18th century. - Tashkent: Science, 1973. - 121 p.
65. Ziyaev H. Uzbekistan is in the grip of colonialism and oppression. - Tashkent: Sharq, 2006. - 352 p.
66. Shastal I. Orography and irrigation Khorezma // Territory and population Bukhari and Khorezma. - Tashkent: Izd. Komissii po rayonirovaniyu Sredney Azii, 1926 g. - C. 3-20.
67. Shaniyazov K. Ethnic history of the Uzbek nation. - Tashkent: Science, 1974. - 343 p.

IV. Monographic books and dissertations:

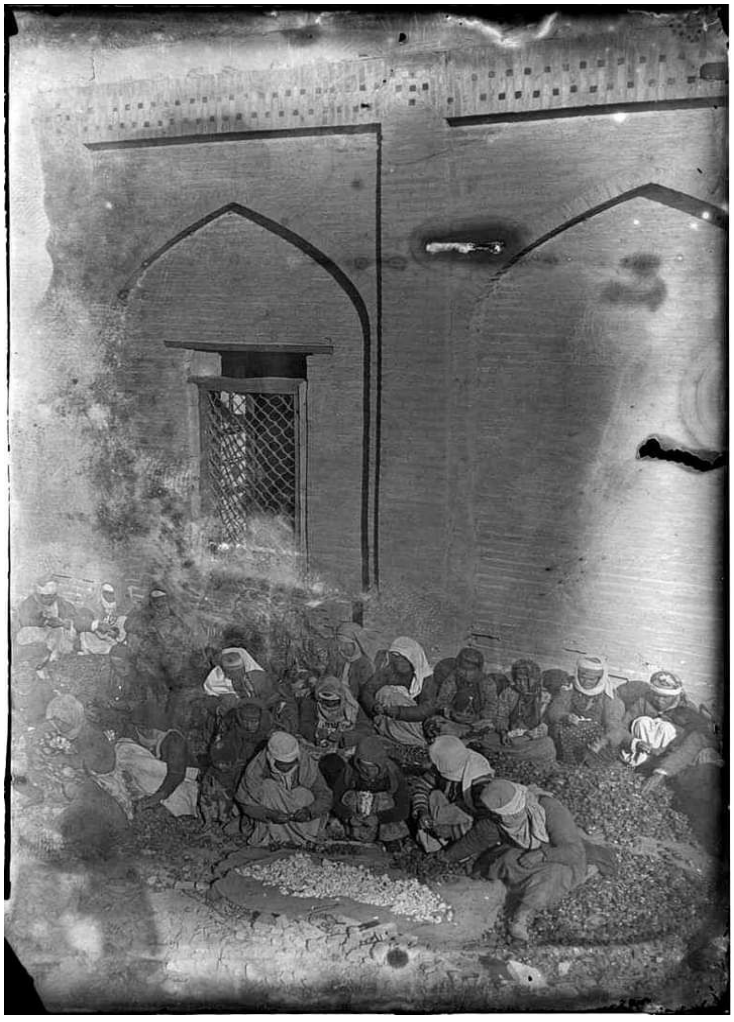
1. Abdurasulov U. Land relations in the Khanate of Khiva in the second half of the 18th century – the first quarter of the 19th century: Candidate's dissertation. abstract. History of Uzbekistan. – Tashkent, 2008.
2. Koshzhanov O. Iz istorii agrarnykh tnoshenyy v Khivinsky khanstve v kontse XIX nachale XX vv.: Kand. diss. 1966. Fundamentalnaya bib. ANUzSSR. Password. 336.
3. Sazonova M. Zemelnye atnoshenia v Khivinsky Khanstve v XIX veka. Candy. diss. Archive institute ethnography AN SSR. 1945. - No. 21.
4. Sarimsakov A. Calendar rites of Uzbeks (based on the materials of Fergana Valley): Candidacy dissertation. Ethnography, ethnology and anthropology. - Tashkent, 2010. - B. 63.
5. Kurbanov A. Ethnic and local characteristics of the traditional culture of the inhabitants of the Northern Surkhan oasis (end of the 19th century - first half of the 20th Century): Candidate's thesis. Ethnography, ethnology and anthropology. – Tashkent, 2009.
6. Qabulov E. Economy of the Surkhan oasis in the second half of the 18th Century - the beginning of the 20th century: Dissertation. History of Uzbekistan. TerDU. – Termiz: 2014. - 324 p.

V. Periodicals:

1. Safarov O., Sultanov O. Memories of the White Mosque // The Truth of Khorazm. 1993, March 23.
2. Kun A.L. Cultural Oasis Khivinsky Khanstva // Turkestanskie vedomosti. 2. 1874, January 8.
3. Alibi, Merke. TV. 1903. January 6.

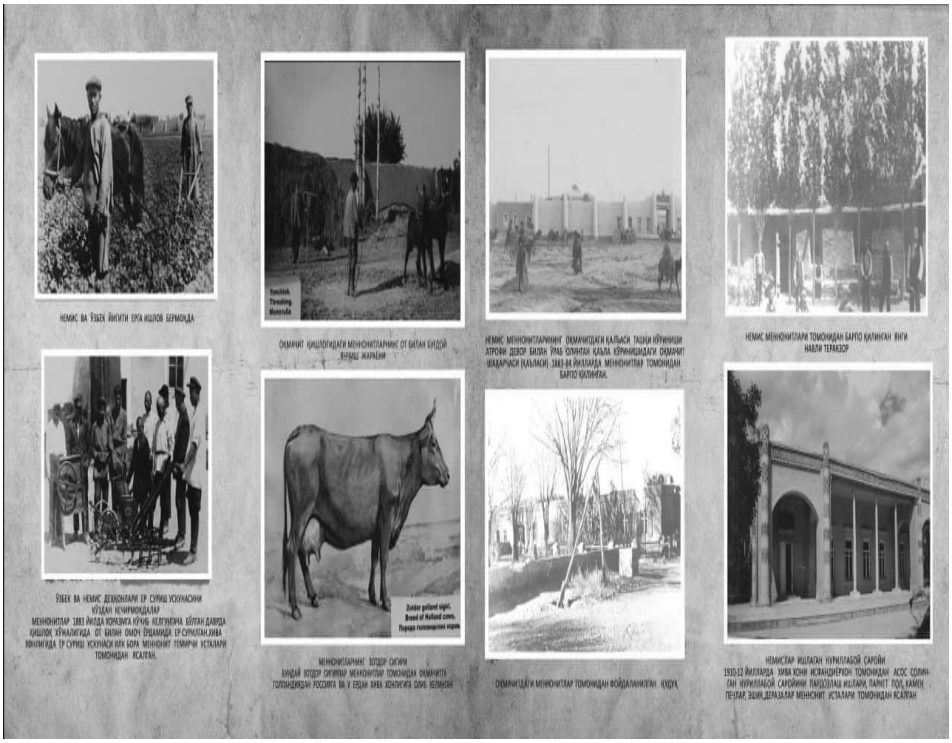
APPENDICES

No. 1.1.



The process of extracting cotton from the bosom in the Khiva Khanate of 1920.

No. 1.2.



German Mennonites who lived in the Khiva Khanate.

No. 1.3.

Average annual income from land cultivation and crops.

Name of cultivated plants	**Soil preparation**				**Amount of seed sowing per 1 hectare**	**Number of watering after germination**	**Harvest time**	**Average yield**
	Amount of fertilizer (For 1 centener)	**Plow depth (in SMs)**	**Number of watering with fertilizer**	**Planting period**				
Spring wheat	800 carts	10-20	4-5	September	9-10	3 times	June	100-130 puds
Winter wheat	800 carts	10-20	4-5	March	9-10	3 times	June	80-100 puds
Barley	1300 carts	10-20	4-5	March	9-10	4 times	June	100-120 puds
Oatmeal	1000 carts	5-6	5-6	May	1 1/2	4 times	October	130-260 puds
Cotton	800 carts	5-10	3-5	April	7	Not watered	The first pick-up started in August and the second pick-up started 20 days later.	20 puds of fiber and 50 seeds produced from 100 puds cotton yields.
Alfalfa	800 арава (every year)	10-20	4-5	In the 2nd half of April	½	10-15 times	4 times a year	4000 bogh (handling unit)
Sesame	It did not require fertilizer (planted after wheat and millet in the usual way).	1	1	June	25 foot	3-4 times	September	50 puds
Mash	It did not require fertilizer (planted after wheat and millet in the usual way).	1	1	jJune	2 pud	Not watered.	September	60 puds
Millet	It did not require fertilizer (planted after wheat	1	1	June	1 1/2	5-6 times	September	150-200

	and millet in the usual way).							
Rice	50 carts salt	8-9	1	May	7	It required little water during the growing season.	September	130
Hemp (kanop)		5-6	5-6	March	35 foot	4 times	September	70 puds of grain
Kandir	800 carts	3-4	3	April	33 puds	4-5 times	July	50-60
Onion		1	1	April	$1^{1}/_{2}$ puds	15 times	September	300 puds
Melon	800-1000 carts			March April June		1 time per week during the vegetation period. After harvest, it is not watered	June July August September	2000 units
Watermelon	800-1000 арава	10	3-5	March		1 time per week during the vegetation period суғорилган. After harvest, it is not watered	July-august	6000 units
Pumpkin	800-1000 арава	10	15	March April		1 time per week during the vegetation period суғорилган. After harvest, it is not watered	September	2000 units approximately

No. 1.4.

Excavation of Pahlavan Yap, 1922.
(During the during the chairmanship of Abdulloh Khozhi).

No. 1.5.

Image of gardens of the Khiva Khanate in the 19th - Early 20th Centuries.

No. 1.6.

Field guards - made by farmers to protect crops from birds.

No. 1.7.

Work tools of the Khiva Khanate (1. Scythe 2. The sickle 3. Mortar 4. Ax 5. Tir 6. Kapcha 7. Digging spade 8. Spade (shovel) 9. Hoe).

No. 1.8.

XIX Century. Farmers plowing the land.

No. 2.9.

The size of the land irrigated with the help of large irrigation networks and the number of chighirs at the beginning of the 20th century, (the territory of the Khanate of Khiva).

№	Names of major irrigation networks	Number of chighirs	Total irrigated land area		The possibility of water release of 1 chighir, at the expense of 1m
1	Polvon	12762	57129.74	44966.97	3.52
2	Shohobod	4537	2781.45	13831.21	3.05
3	Qilichniyozboy	1905	11725.18	7091.03	3.72
4	To'khson	957	4709.36	4478.36	4.68
5	Ghazovot	945	5686.87	2895.14	3.06
6	Yarmish	860	3361.99	2743.24	3.19
7	Qiyot-Qo'nghirot	818	2465.03	2296.18	2.81
8	Khonqa	704	2727.50	2727.50	3.87
9	Manghit	566	4534.11	2393.86	4.24
10	Qorako'z	226	1273.13	898.13	3.97
11	Ulukengli	49	435	435	8.88
12	Cho'bolonchi	23	183.75	183.75	7.99
13	Kichik kengli	3	240	240	80

No. 2.10.

A medium-sized horse-drawn chighir.

No. 2.11.

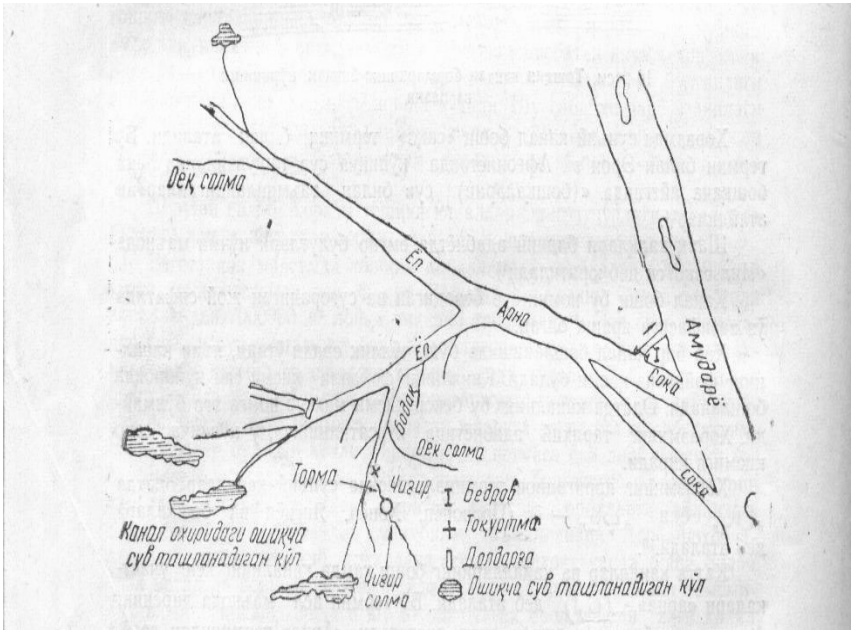


Illustration of irrigation networks and structures in the main canal system of Khorezm.

No. 2.12.

The total cost of working tools in the Khiva Khanate and their duration of use in the second half of the 19th Century.

№	Farming tools	Number	Total cost of 1 labor tool	The total cost of this type of labor tools	Expiry date	Rent payable annually
1	Chighir (to repair it)	1	25 roubles	25 roubles	10 years	2 roubles, 50 tiyins (2 roubles)
2	Soha	1	2 roubles	2 roubles	2 roubles	20 tiyins
3	Steel ladle	1	1 roubles	1 roubles	3 years	33 tiyins
4	Yarma	1	2 roubles	2 roubles	20 years	10 tiyins
5	Belt patch	1	80 tiyins	80 tiyins	1	80 tiyins
6	Mala	1	2 roubles	2 roubles	6 years	33 tiyins
7	Mala-dandana	1	6 roubles	6 roubles	6 years	1 roubles
8	Spade	2	2 roubles	4 roubles	1-2 years	2 roubles, 66 tiyins
9	Hoe	1	2 roubles 50 tiyins	2 roubles 50 tiyins	5 years	50 tiyins
10	Yava	1	50 tiyins	1 rouble	2 years	50 tiyins
11	Carts	1	30 roubles	30 roubles	30 years	3 roubles

No. 3.13.

Red flower - during the Khiva Khanate, a farming festival related to this flower type was held in the spring season.