Czech
Journal of Multidisciplinary Innovations
Volume 10, October, 2022. ISSN (E): 2788-0389
Website: www.peerianjournal.com Email: editor@peerianjournal.com

The Role and Significance of the Use of Wood Materials in the Architecture and Construction of Traditional Houses of the Indigenous Peoples of Uzbekistan

D.Z. Saloxiddinova
Candidate of architecture, assistant professor,
Samarkand city (Uzbekistan)
Samarkand State Architectural and Construction Institute
Z. Z. Zhuraev
(PhD) doctoral student
Samarkand State Institute of Architecture and Construction Institute,
Faculty of Architecture.

Annotation: The article deals with issues, features of the use of wood materials in architecture and construction of traditional residential buildings. Provides information about the use of wood in architecture and construction of traditional ladies. The course of creation of the main constructive and structural wooden parts in traditional residential buildings is briefly disclosed. At the same time, the use of wood and wooden structures in the modern architecture of Uzbekistan is briefly disclosed.

Keywords: Woodworking, Columns, Purlins, Racks, Frame, Woodcarving

For centuries, Samarkand has inspired writers and conquerors, from Alexander to Genghis Khan. The reputation of this city comes from its location on the Silk Road, which allows it to play an important role as a center for the exchange of ideas, goods, religions and architectural styles. The history of Samarkand can be traced back to the Paleolithic period (making it one of the oldest population centers in Central Asia). The city is famous for its squares, ensembles built during the golden age. Among them, one of the most impressive and world-famous buildings is the ensemble of the Jami mosque and the Bibi Khanym mausoleum built by Amir Temur at the end of the 12th century.

The architectural grandeur of the building was not only in the civil scale of the ensemble, but it was also lined with mosaic tiles in floral and geometric ornaments. While Temur was known to foreigners as a ruthless conqueror, in his native city he demonstrated a passion for art. Timur's ambitions led to the creation of a huge empire, but he spared no effort and no means for building in the capital city of Samarkand. He financed the construction of richly decorated and designed buildings and attracted artisans. In the construction of housing and architectural structures, the main requirements were their strength and stability. Our ancestors, builders, architects, developed building canons, which made it possible to build wonderful earthquake-resistant stable buildings that stood for centuries. Therefore, many of them have survived to this day, having withstood heat

Czech
Journal of Multidisciplinary Innovations
Volume 10, October, 2022. ISSN (E): 2788-0389
Website: www.peerianjournal.com Email: editor@peerianjournal.com

and frost, earthquakes, fires, raids of enemies. And here it is impossible not to say that the ancient architects used in their work a solution of gypsum - ganch, which is very elastic, it is at the same time strong - like a spring, which contributed to the seismic resistance of buildings. Master builders - binokor worked at private and government jobs. Private construction was carried out under an agreement - karor, and state construction was carried out by order - farmoish. In both cases, both the private owner and the government customer preliminarily prepared the necessary materials, chose a senior ustokalon master. When erecting brick buildings, this was a Khishtkor mason or a Gilkor clay digger, and in the case of building frame buildings, a Nadjor carpenter was considered such. It must be remembered that until the middle of the 19th century, the labor of slave slaves was used in the khanates of Central Asia.

The Uzbek folk dwelling, like a pearl shell, hides the treasures of art inside the shell of deaf and inexpressive clay walls. Only sometimes an architectural touch - a shadow spot, a loggia, a lattice opening enlivens the stingy surface of the street facade. But inside the courtyard, in contrast to the dust and heat of the street, the visitor is greeted by the cool shadow of the aivan, the greenery of the vineyard, cleanliness and comfort, instead of monotonous walls, exquisite spatial combinations, fine decoration of the details of the aivan and the room.

The appearance of the dwelling is characterized by spaciousness, picturesqueness, scale and that special intimacy that is generated by the loving and attentive arrangement of every corner and detail. Even the most modest dwellings followed architectural traditions and provide grateful material for study. All kinds of folk artistic skills are involved in the decoration of the dwelling - carving on ganch and wood, painting the ceiling and walls; works of artistic craft contribute to the same goal: chasing and engraving on copper trays, jugs, etc., ceramics, glazed dishes, wood carving chests and caskets. All these utensils are placed in special niches. In addition, the walls are decorated with various types of embroidery. The site is divided into outer and inner halves (biriun and darun or tashkari and ichkari). On the first one, the owner received visitors and was engaged in crafts, a mehmankhana (reception room), stables, a forage warehouse were located here, on the second, family life flowed, living quarters of the khon were grouped, kitchen and services, pantries, etc. Sometimes a special utility yard stood out, and in some cities the size of the plot allowed cultivating a garden.

At the turn of the 19th - 20th centuries, according to the established procedure, the master made calculations in writing, agreed with the customer. The master selected the workers he needed from among the carpenters, joiners who constantly worked with him, and, if necessary, masons, and auxiliary workers.

They paid ruzbai (by the day), the master received 10 tanga-2 rubles per day at the established rate, less qualified - 5 tanga-1 ruble, mardikor (laborer) - 2-3 tanga-40-60 kopecks. In addition to monetary payment, the owner of the construction site was obliged to provide all workers with hot meals [1,101-102].

The largest researcher in the history of folk architecture in Central Asia in the late feudal period A.K. decay resistance. The use of juniper in construction was then considered not only desirable, but also mandatory, prescribed by administrative orders [2,245].

Especially beautiful are the wood carvings in the Juma Mosque in Ichan-Kala. It was rebuilt at the end of the 18th century, but retained the features of the classical buildings of the East. This original one-story building, without portals, arches and domes, is a huge hall with a flat roof,

Czech
Journal of Multidisciplinary Innovations
Volume 10, October, 2022. ISSN (E): 2788-0389
Website: www.peerianjournal.com Email: editor@peerianjournal.com

supported by 213 carved wooden columns. It is they, different in size, shape and decoration, that represent the high artistic value of the mosque. (Fig. 1).

A) *B)*

Fig.1. A) Zhuma Mosque in Ichan-Kala. B) Kuzagi-spherical base

Archa went to the upper and lower trims, above the racks, beams and other building structures. By order of the Governor-General of the Turkestan Territory of 1879, deforestation of juniper and sale in the markets were prohibited. What is happening today in the takhta korcha reserve, where there is complete chaos. Restaurants and houses are being built in the protected area. And thus violated the status of the reserve. At the end of the 19th and beginning of the 20th centuries, poplar-"safedor" became the predominant timber in construction. It was used for the manufacture of beams - "sarrav", the ceiling - "sakf", doors - "dar", shutters - "ravok", lower and upper trims, frame struts - "sinch". As a building material for the intermediate racks of the frame, struts, "vassa" bars, capitals, they also used black willow - "siyokhbed"

Its wood was considered smooth, soft, easy to process and very durable. Karagach went to the columns, lower strappings - "takhkursi" and racks - "sutun" of the frame and was widely used for the manufacture of axles and bushings, carts and carts. Expensive tree species: plane tree and walnut - were used to create carved gates, doors, shutters. A hard, damp-resistant mulberry tree was used to make thick wooden pillows placed under the columns, and to make a box - “drowsy boletus” over the canal running under the house. The hard and durable material was the apricot tree - “chubi zardola”, although it dried out and cracked.

Ceilings of a residential building. The type of decoration of the ceiling of the room according to the degree of complexity of execution can be divided into such options as: beams and vasa, vasa is interspersed with plank squares, beams and vaga are framed along the perimeter with plank squares, a plank ceiling divided into squares, a plank ceiling with profiling and appliqué from planks, the ceiling is wooden figured. The most common and ubiquitous type of open structure ceiling is beams and wasa. In terms of the degree of thoroughness of execution, here again, several cases differ. The most modest type, when the vasas are not closed tightly, but laid at intervals through which the berdana lying on top of the vasa -buyra, is visible, is called the buira-vasa(Fig. 2).

Czech
Journal of Multidisciplinary Innovations
Volume 10, October, 2022. ISSN (E): 2788-0389
Website: www.peerianjournal.com Email: editor@peerianjournal.com

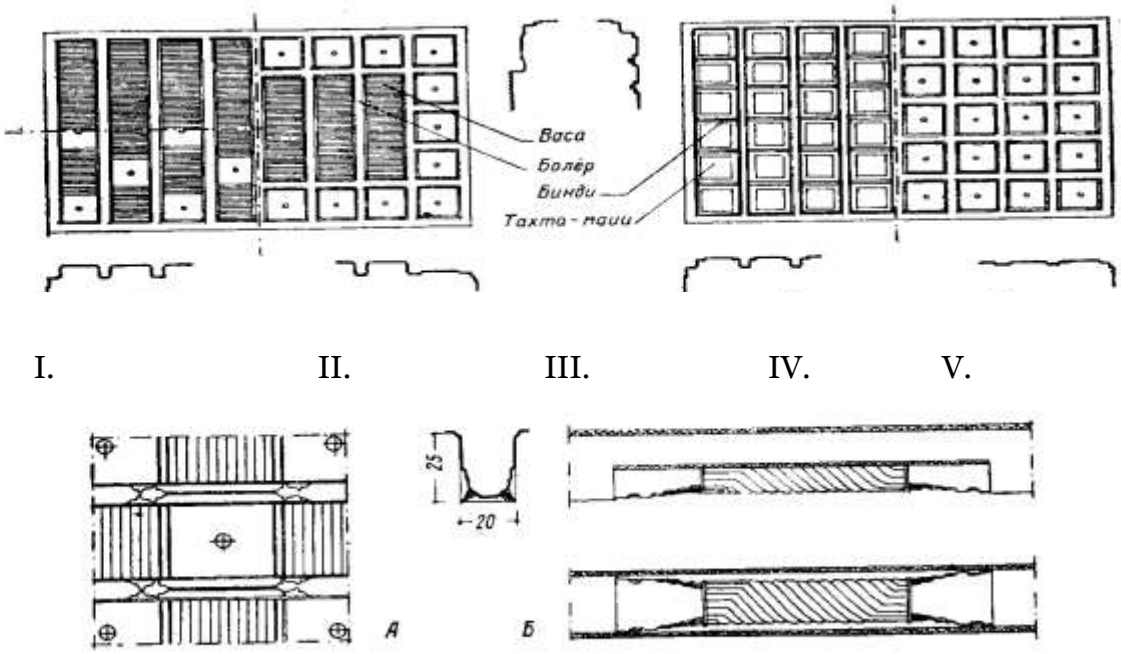

Fig.2. Types of plafonds of a residential building
I - vasa type, II - vasa and squares, III - takhta-murabbo, IV-V pushishtakhta-maich;
A - type II detail, B - finishing of beams in Bukhara.

I must say that this simplest type of ceiling, if it is not dilapidated, by no means leaves an ugly impression. The beams in this case are not processed and are left in their natural round form. A cleanly crafted beamed ceiling has tightly fitted vasas and hewn beams (tusun, bolor). Along the edges of the ceiling near the longitudinal walls, the planks imitate wall beams. The number of ceiling beams with the usual dimensions of the room is seven, not counting the extreme ones. This number, associated with religious superstitions, was considered lucky.

If the room is longer than normal, the number of beams is increased to nine or eleven, in any case an odd number is always preferred. The ribs of the beams and their joints from the vasa are circled with a zanjira. In Bukhara and the Bukhara region, there is a manner of rounding the cross section of rectangular beams in the middle of the span, and the transition from a rectangular section to a round or faceted one is carried out in a different way. One of the options for decorating the middle of the beam is a figurative carving, which creates a semblance of a small column of the type that is about 5 cm wide, but there are deviations in one direction or another. Sometimes fake wasa boards are made and cut with a roller (pilta wasa). Ceiling beams are decorated with carvings or paintings, the first technique is forced out by the second in the middle of the last century. Vasa remained in their natural form or were painted. In the cities of Kashka-Darya, vasas were covered with red paint or painted in pairs in various bright colors.

At the beginning of the 20th century, imported pine timber was used. In Turkestan and its period under consideration, during the construction of various buildings with a wooden frame - frame walls and ceilings - the main builder was an experienced master carpenter, called "duredgar". At the same time, all the necessary wooden structures of a residential building,

Czech
Journal of Multidisciplinary Innovations
Volume 10, October, 2022. ISSN (E): 2788-0389
Website: www.peerianjournal.com Email: editor@peerianjournal.com

industrial premises and public buildings were made at the construction site where the building was erected(Fig.3).

Fig.3. Clean-cut beamed ceiling

We will briefly describe the process of creating the main wooden structural parts of residential buildings, namely: frame walls, ceilings, as well as doors, windows, shutters and other vital elements of the house. Among the main types of walls erected during the housing construction of Samarkand and its suburbs at the end of the 19th - beginning of the 20th centuries, which were considered adobe, made of mud bricks, without racks, the priority was considered to be frame - “devori synchdor”. (wow chupkori).

The construction of the frame in Central Asia was similar to the structure of the wooden skeletons of buildings in other cities of Central Asia. It was formed from the lower and upper harnesses, racks and struts. The lower harness was called “taksinj”, the inner lower frame was called “taksinji darun”, the outer one was called “taksinji berun”, the upper harness was called “porchahari” (in Bukhara, Ferghana and Samarkand), “zabarrav” (in Samarkand), corner joints - “ sutungusha", struts - "howon" (from "hobon" - inclined), transverse struts between the strut and the adjacent rack - "pushtak", sticks resting on top and bottom of these struts and holding them - "tanks" ntermediate racks were called "kalam", racks of the inner row of the wall from a double frame - "pawn-ma". The cross beam, fixed between two pillars of the doorway and being the upper part of the door frame, was called "sardari", a box for the window and above the doorway, where wooden bars were inserted - "tobadon"(Fig.4).

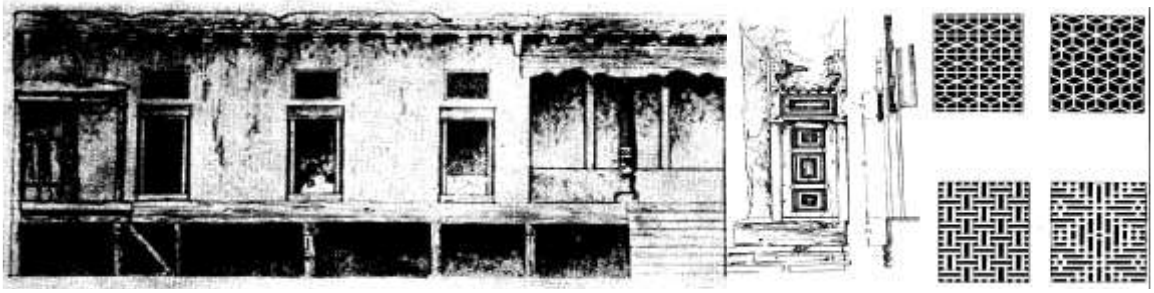

Fig.4. Shakhrisabz. "Sardari", a box for the doorway,wooden bars, "tobadon".

Czech
Journal of Multidisciplinary Innovations
Volume 10, October, 2022. ISSN (E): 2788-0389
Website: www.peerianjournal.com Email: editor@peerianjournal.com

In Samarkand at the end of the 19th - beginning of the 20th centuries, according to the observed traditions of earthquake-resistant construction, a combination of walls made of double and single wooden frame was used in residential buildings, called "kushsinch" (or "chuftsinch") and "yakkasinch"; the frame is formed from the lower strapping - "chorchub", the upper strapping "porchahari", racks, struts, crossbars - "nimporchahari", braces - "bolor". Usually the back wall of the living room, which necessarily had niches - “tok” and “tokcha”, was erected from a double frame, and the front wall consisted of a single frame.

A.K. Pisarchik, according to his own information, writes that in Samarkand, unlike Khujand, Kokand, Margelan and Tashkent, “as a rule, deep, large niches, divided by smooth ganch boards into 4 parts, or smaller, but deep niches were made in the front wall, which was always made of a double frame, while the rear wall was mostly made of a single frame” [3,72].

A common type of flooring - "pushish" in Bukhara, Samarkand and Fergana residential buildings, as well as in quarterly mosques, was considered to be a wooden beam ceiling with earthen flooring - "hokpush" - ("covered with earth") from above.

The forms of the “shift” ceiling in the past had simple and complex types. A simple version was a structure consisting of round beams and blocks, called "wassaburyo". This ancient method of ceiling covering was used in living rooms, as well as in rooms that had an economic purpose. At the same time, beams - round timber and vassa - poles fit into a discharge, through which a braided line (berdan (buira)) was visible.

Another variation of this version of the ceiling, consisting entirely of stacked perches, was called "wassachuft". According to V.L. Voronina, in Samarkand, Bukhara and Ferghana, rooms of normal size (about 3.50x5.50 m) were usually laid with seven beams, not counting the extreme wall beams [5]. Along the walls, the beams were connected by a “tokpush” strapping, two sides of which were attached beams, and the other two were imitated by plank inserts between the ends of the ceiling beams [4]. In a simple form of the ceiling - "wassaburyo" and "wassachuft" its base formed a wooden frieze - "arak" and a wooden cornice that enriched the ceiling, the elements of which were an inclined strip - "nimhoshiya" or a concave profile - "nova" going above the frieze and the previous strapping , slightly sloping "hoshiya".

A complicated version of the ceiling is presented in the works of A.K. Pisarchik, Kh. V. L. Voronina, I. I. Zuchin. N.O. Tursunov studied this option using the example of living rooms in the houses of Kozi (judge) Mahmudkhan in the Guzari Ohun quarter and Kozi Muhammad Amin in the Oglukoni Poyon quarter in the city of Khujand.

Variants of complicated forms of ceilings were as follows: a) a clean beam ceiling, in which spans - "tabila" - are covered with a vase; b) a beam version with the introduction of corner squares decorated with stalactite domes - "khavzak"; c) complication of the beam ceiling with the introduction of flat cassettes in the center and in the middle and with the preservation of cupolas - “khavzakov” in four corners; d) a mixed ceiling, in which open spans of beams with a vase alternated with flat cassettes; e) a figured dosha plafond with a complete disguise of the ceiling beams, in the center of which there was a “khavzak”.

The researchers evaluated option "e" as the highest level of decorativeness in the artistic decoration of the ceiling in residential and public buildings.

According to the research made by A.K.Pisarchik in Samarkand, Tashkent, the cities of Fergana, including Khujand, since the late 90s of the XIX century, the style of decorative

Czech
Journal of Multidisciplinary Innovations
Volume 10, October, 2022. ISSN (E): 2788-0389
Website: www.peerianjournal.com Email: editor@peerianjournal.com

decoration that came from Bukhara came into fashion - the design of wooden panels only in the end wall - “devori peshgah” (most often in mehmonkhon).

The wooden panels consisted of a series of vertically elongated rectangular panels. They were called "sanduka". The joiners of Samarkand made single-leaf and double-leaf doors - “give yaktavoka”, “give dutavok”(Fig.5).

Fig.5. Bukhara - decoration of wooden panels only in the end wall - "devori peshgah"

Doors assembled from smooth thick boards, installed in the poorest houses in living quarters, were called "uwaydi". In the living quarters of wealthy people, paneled double-leaf doors were made, which are widespread in the cities of Central Asia, called "bagdodi" - Baghdad. Such a door consisted of wings made of two long boards - “bozu”, ledges, pins - “turm”, dressed at the ends of the bozu, which were included in the corresponding nests of door frames - “kesakiidar”.

In the dwellings of the population of Turkestan in the late XIX - early XX centuries. the role of windows was performed by a wooden shutter - a “gift”, which was made of the same size and shape as ordinary entrance doors. (Figure 6). Craftsmen also made wooden bindings in the form of a large lattice from intersecting vertical and horizontal bars, called "darparda" (lit.: "door-curtain"). “Tobadon” was made above the doors and bindings. Openings in the hot and cold seasons of the year had different purposes(Fig.6).

Czech
Journal of Multidisciplinary Innovations
Volume 10, October, 2022. ISSN (E): 2788-0389
Website: www.peerianjournal.com Email: editor@peerianjournal.com

Fig.6. Entrance doors of Samarkand, Bukhara, Khiva.

In the summer they served for ventilation, in the winter they contributed to the penetration of light into the room. The openings were blocked with wooden gratings - "panchara". The simplest motifs of lattices in Bukhara residential buildings. Top - ganch, bottom - wood. Living rooms of the spring-autumn period with thin wooden walls, consisting of sliding lifting shutters - "ravon" were common. Such movable shutters, if necessary, could turn the room into an "aivan" - a terrace, an open gazebo - "shipang" and a living room - "honai nishastu hez". This type of housing was also called "kashkarcha" in Kashgar, which testifies to its Eastern Turkestan origin [3,83] (Fig.7).

Fig.7. Khiva body of the column - "tani sutun" kuzagi

The columns of Central Asia were called "sutun" and were made faceted. According to the number of faces, columns with eight “hashtrakha” and sixteen “shonzdahrakha” faces were known. The body of the column - "tani sutun" - in the lower part, installed on a stone base, had a roundness that resembled a protrusion of a jug and was called "kuzagi". These round apple-shaped parts were also called "degi" - cauldron-like or "tarbuzi" - watermelon-shaped. (Figure 7).

Czech
Journal of Multidisciplinary Innovations
Volume 10, October, 2022. ISSN (E): 2788-0389
Website: www.peerianjournal.com Email: editor@peerianjournal.com

In general, research materials on the history of woodworking techniques and the processes of making wooden objects in folk architecture allow us to consider issues of the history of technology and natural science, to determine the stages and stages of the technical and economic development of the late feudal society of Central Asia, the traditional life and culture of the peoples of Turkestan, as an example of one of the largest urban centers of the Middle East. Asia, which is the city of Samarkand, Bukhara, Khiva, Khujand. As can be seen from the review in Central Asia, since ancient times, wood has been widely used as a constructive and architectural and decorative element in traditional architecture.

The above review of the design and construction of wood will determine that wood construction is a new, modern trend in the creation of environmentally friendly modern structures. We also consider it necessary to note the construction of wood does not cover countries that, due to their climate and geographical conditions, are located in such a wide area where wood was the main building material in the past and was available to the general population. Under modern conditions and technological advances, wood becomes, in these countries, even more so it is a renewable natural material available in countries located in northern latitudes. However, in Central Asia, wood is now widely used as a decorative material in the interiors of public buildings. At present, burnt brick, burnt concrete are in great demand in Uzbekistan as a building material, aerated concrete blocks are beginning to spread.

In Uzbekistan, almost 90% of lumber is imported, because of which, during construction, they try to minimize the use of wood in construction. Wood is widely used mainly in the execution of interiors in the national style. Expensive wood species are also used for the manufacture of expensive exclusive furniture.

References

1. Sukhareva O.A. The late feudal city of Bukhara of the late 19th - early 20th century. Craft industry. - Tashkent: Ed. Academy of Sciences of the Uzbek SSR, 1962.
2. Pisarchik A.K. Building materials and constructive techniques of folk craftsmen of the Fergana Valley in the XIX - early. XX centuries / Central Asian ethnographic collection.- Vol.1. Proceedings of the Institute of Ethnography. N.N.Miklukho-Maclay, -M. : Ed. Academy of Sciences of the USSR, 1961, T.XXI.
3. Pisarchik A.K. Folk architecture of Samarkand. - Dushanbe: Donish, 1975.
4. Pisarchik A.K. Decree. cit., pp.77-82; Varonina V.L. Decree. cit., pp. 49-50; Yuldashev H.A. Architectural ornament of Tajikistan. Polychrome pictorial ornament. -M., 1957, p. 7,10,11.
5. Voronina V.L. The term "tagsinch" was defined as "longitudinal beams", taksari - "transverse beams", the strapping laid on the base, which served as the basis for laying the walls - "chorchub". See: Folk architecture of Northern Tajikistan. - Stalinabad, 1959. -p.38.
6. Maxmatqulov I. T. et al. Proposals for the Use of Historic Shopping Malls in Uzbekistan for Modern Purposes //Middle European Scientific Bulletin. – 2022. – T. 21. – C. 198-201.
7. Zubaydullayev U. Z., Maxmatqulov I. T. ARCHITECTURE SELF-BUILT KHANAKA BUILDINGS OF MEDIEVAL CENTRAL ASIA //World Bulletin of Management and Law. – 2021. – T. 3. – C. 56-59.

Czech
Journal of Multidisciplinary Innovations
Volume 10, October, 2022. ISSN (E): 2788-0389
Website: www.peerianjournal.com Email: editor@peerianjournal.com

8. Махматкулов И. Т. Типология архитектурно-композиционных решений зданий ханака в центральной азии //электронный сетевой политематический журнал" научные труды кубгту". – 2020. – №. 8. – с. 581-585.
9. Uralov A. S., Makhmatkulov I. T., Kidirbaev B. Y. FUNCTIONAL FEATURES, TYPES AND COMPOSITION OF PREMISES OF KHANAKA BUILDINGS IN CENTRAL ASIA //Science and Education in Karakalpakstan ISSN 2181-9203. – С. 46.
10. Turdimurodovich M. I., Djurakulovich G. B., Quziyevich E. I. The role and place of the khanqahs in spreading the mysticism and spiritual purification to the peoples of central asia //International Journal of Scientific and Technology Research. – 2020. – Т. 9. – №. 3. – С. 561-563.