



Journal Website:
<https://theusajournals.com/index.php/ajsshr>

Copyright: Original
content from this work
may be used under the
terms of the creative
commons attributes
4.0 licence.

THE EVOLUTION OF THE OIL INDUSTRY IN THE FERGHANA VALLEY FROM THE KOKAND KHANATE TO THE COLONIAL ERA

Submission Date: December 12, 2023, Accepted Date: December 17, 2023,

Published Date: December 22, 2023

Crossref doi: <https://doi.org/10.37547/ajsshr/Volume03Issue12-42>

Khusnida Ergasheva

Doctoral Student At The Department Of History Of Uzbekistan National University Of Uzbekistan

ABSTRACT

The Ferghana Valley has long been recognized for its rich history and abundant natural resources, particularly its significant role in the development of the oil industry. This paper aims to provide a comprehensive historical account of the oil industry in the Ferghana Valley during the period of the Kokand Khanate and the subsequent colonial era.

The study begins by delving into the early developments of oil extraction and production in the region, highlighting the traditional methods employed by local communities and the cultural significance of oil within the society. It then examines the impact of the Kokand Khanate on the oil industry, exploring the influence of the Khanate's administration and policies on the production and trade of oil.

Furthermore, the paper investigates the transformative effects of the colonial era, during which the Ferghana Valley fell under the influence of various external powers. It analyzes the introduction of modern technologies, infrastructural developments, and the establishment of colonial oil companies, shedding light on their role in shaping the industry and its relationship with the local populace.

Moreover, the study evaluates the socio-economic implications of the colonial period on the oil industry, including changes in labor practices, trade dynamics, and the integration of the Ferghana Valley into global oil markets. It also addresses the environmental impact of increased oil extraction and the responses of local communities to these changes.

By examining primary sources, historical records, and scholarly works, this paper seeks to provide a comprehensive understanding of the evolution of the oil industry in the Ferghana Valley. It aims to contribute to the broader discourse on the historical development of oil industries in regions with similar historical and geographical contexts, offering insights into the complex interplay between local traditions, imperial ambitions, and global economic forces.

KEYWORDS

Traditional techniques for extracting oil, refinement of crude oil, derivatives of petroleum, strategic utilization of oil, drilling for oil reservoirs, oil sector.

INTRODUCTION

In world history, oil, as the basis of liquid hydrocarbon fuel, is of great importance; it has been known to mankind since ancient times; various petroleum products are produced from it and are used as a driving force in the processing, production, and transportation of many other goods. Previously, oil was extracted using simple primitive methods based on manual labour; later, oil was extracted by manual drilling and drilling with the help of machinery. With the growing demand for oil in the world market, attention to the oil industry has increased. As a result, new technologies for oil production and refining were widely used. On the territory of modern Uzbekistan, the first oil industry was created in the Fergana Valley.

The article examines the history of the oil industry of the Fergana Valley from the mid-19th century to the end of the First World War, that is, on the border of the Kokand Khanate and the Fergana region within the Russian Empire. Among scientific studies in this area,

scientific studies carried out during the Soviet period are distinguished by the fact that they approach the topic from the point of view of colonial ideology. In scientific research conducted during the years of independence on the topic of the history of the development of the industry, it is of particular importance, since it is carried out on the principles of historical truth and objectivity in covering the development of the oil industry, infrastructure, impact on nature and ecology in connection with the well-being of the people of Uzbekistan.

Analysis of literature and sources on the topic. In studying the history of the oil industry of the Fergana Valley during the period of the Kokand Khanate and the Russian Empire, scientific treatises and monographs on this topic published in Soviet times and in the years of independence, textbooks, historical normative documents related to this area, as well as information contained in annual reports of oil industry enterprises

in the region. In works written during the colonial period of the Russian Empire, in studies conducted during the Soviet period and during the years of independence, as well as partially in scientific research by foreign scientists, the topic is analyzed from the point of view of the era. During the Soviet period, Sh. Muzaparov conducted research work on the topic “Culture and life of the Uzbek oil workers of the Fergana Valley.” The work of Sh. Muzaparov provides information about oil production at the Andijan, Polvontosh, South Olamushik, North Sokh, Chimion, Namangan oil fields in the Fergana Valley and about workers working in the oil industry. During the years of independence, I. N. Jamolhodji conducted scientific research on the topic “History of the formation and development of the oil industry in the Fergana Valley” (1860-1917). This dissertation examines the raw materials resources of the government of the Russian Empire in the region, the history of the exploitation of oil resources by Russian and foreign entrepreneurs, and oil companies. During the study of publications and scientific research on the topic, they were divided into three groups. The first group includes literature from the colonial period of the Russian Empire, the second group includes publications from the Soviet period, and the third group includes literature from the period of independence. Information on the history of the oil industry of the Fergana Valley during the period of the Kokand Khanate and the Russian Empire can be found in the books of Kh.N. Bobobekov “History of Kokand”,

I.O. Brod “Underground Oil and Gas Resources of the USSR”, Kh.H. Akhmadov, M. A. Musaeva, A. M. Syrkina, L. Sh. Makhmudova, M. A. Takaeva “Extraction, processing and research of Grozny oil during the 19th - early 20th centuries”, A. R. Mukhidova, T. T. Tozhieva “Black gold of Uzbekistan”, monographs by Kh.M. Abdullaev “Underground resources of Uzbekistan in the service of socialism” and A.A. Abidov, O.G. Khaitov, I.Kh. Kholismatov “Geology of oil and gas”.

Research methodology. This article is devoted to the study of the history of the oil industry of the Fergana Valley during the period of the Kokand Khanate and the Russian Empire. During this period, after the collapse of the Kokand Khanate, the Russian Empire, as a result of the introduction of Russian and foreign investments in the process of studying, researching and developing the natural resources of the colony, increased oil production in the Fergana Valley to an industrial level; in studying this process, comparative, historical and factor analysis were used to coverage of the topic. Conclusions and proposals were developed using current research works and archival materials.

ANALYSIS AND RESULTS

In ancient times, oil was extracted and used for various purposes in the North Caucasus, Mesopotamia, Egypt, Burma, Malaysia, China, Romania, including the Fergana Valley of Uzbekistan and a number of other countries. The oil production and processing industry

in the Fergana Valley was raised to the artisanal level by local artisans and entrepreneurs living in the Kokand Khanate from the mid-19th century, and by the beginning of the 20th century, attention to this industry increased. As a result, the oil industry reached its peak in terms of the era.

A number of historical data confirm that the history of oil production in the Fergana Valley actually took place in the historical past. Many historians, geographers and travelers mention this fishery in the Fergana Valley in their notes. The first information about oil production in Central Asia can be found in the works of Greek, Arab and Russian scientists [9.P.2].

Historical information about the presence of oil wells in the Fergana Valley and in Khorezm dates back to the period BC; the ancient Greek historian Plutarch reported that before Alexander the Great's campaign in India, "The head of the royal sleeping bags, a Macedonian named Proxenus, was preparing a place near the Oxus River for Alexander's tent, discovered a source of thick and greasy liquid. When they scooped up what was on the surface, a clean and light stream began to flow from the source, no different in smell or taste from olive oil, just as transparent and greasy. This was especially surprising because olive trees do not grow in those areas. They say that in the Oxus itself the water is very soft, and those who bathe in this river have their skin covered with fat" (Plutarch, 1961: XXXV), and later he saw that oil stood on the surface of

the earth in the village of Mailisoy, located in the north of the Fergana Valley, and used it for your needs. According to local residents, the oil well in the Mailisoy area was later exploited under the name of Alexander the Great [10.P.18].

Oil deposits discovered in the Fergana Valley were widely used by local artisans. Healers well versed in traditional medicine used the black oily liquid, filled with the natural depths of the earth, as medicine. People came from distant places and took bottles filled with unrefined crude oil from the depths and used it as a cure for itching and skin diseases [2.P.14].

Oil was widely used for military purposes. Those besieged by the enemy defended themselves by dousing the attackers with burning kerosene. Those who attacked the enemy burned oil products on arrows [10.P.9]. It can be seen that people have been effectively using petroleum products since ancient times.

Oil production has been developed since the mid-19th century by local artisans using a method of collecting oil from open wells, based on manual labor. Local artisans and entrepreneurs who lived in the Khanate extracted oil from oil wells using primitive methods, for example, soaking with rags, or from surface wells using ladles and buckets [10.P.10]. During this period, the method of oil extraction by drilling was just discovered in the world oil industry and had not yet been applied

on the territory of the Khanate. The extracted oil was used mainly for the needs of the population - for medical purposes, as cheap fuel for lighting, in crafts and for military purposes. In the Russian Empire, starting in 1823, in the North Caucasus, the brothers Vasily, Makar and Gerasim Dubinin, serfs, began the industrial production of kerosene from oil by distillation [4.P.8] great shifts in the field began to be observed. Kerosene products are more convenient than crude oil for medical and lighting purposes, and their use has become popular. Kerosene was considered the cheapest and most convenient of all lamp oils known at that time [6.C.3]. In 1853, the Polish pharmacist Ignacy Łukasiewicz invented and quickly became popular the kerosene lamp, which was the most efficient in terms of lighting power among the lighting devices of that time (candles, lampshades, etc.). For this reason, the extraction of kerosene from oil has become widespread.

The chemical properties of oil obtained from fields on the territory of the Kokand Khanate facilitated the process of extracting kerosene from it. That is, the absence of heavy deposits in the oil composition made it possible to obtain more kerosene while spending less technological costs on oil distillation [6.C.4]. The products of local artisans were important not only for the needs of the population living in the Khanate, but also in foreign trade. Craftsmen and entrepreneurs

living in the Khanate successfully used oil wells to produce products for export to neighboring countries.

In order to use the oil wells identified on the territory of the Khanate, local artisans and entrepreneurs received permission to rent oil wells. Archival sources contain information that in the Kokand Khanate the development of oil fields and the extraction of petroleum products was carried out on the basis of the permission of the Khan. In particular, it was recorded that local businessman Polvon and merchant Mikhail Fedorov rented an oil field for 1000 rubles for oil production in the city of Namangan with the Khan's label [11]. In addition, similar information can be found in the works of Russian scientists who conducted research on the territory of the Kokand Khanate. Researcher A.P. Fedchenko in 1868-1871, exploring the Southern Tien Shan, Fergana Valley, Aloy, Pamir Mountains, discovered that there were many oil sources in these areas. A.P. Fedchenko, exploring the geography of the places he studied and the customs of the peoples, wrote in his scientific work entitled "Travel to Turkestan" that another thing that interested him in research was oil. In his scientific work, he records information about the discovery of an oil spring by Haji Yunus from Tashkent at the foot of Mount Mahram and that Haji Yunus received a Khan's label asking for permission to use an oil well from the Kokand Khan [15.P.39]. In an article by another Russian scientist A.A. Kushakevich, published in the journal

“Russian Geographical Society” in 1871, he writes that there are more than 200 oil springs on the territory of the Kokand Khanate, including the Fergana Valley. Later, there is information in the sources that in 1878 G.D. Romanovsky also found oil springs in many places in the Fergana Valley [10.P.19]. If you pay attention to the information given in the sources, you can note that there were many oil wells on the territory of the Kokand Khanate, and permission from the khan was obtained for their use.

For example, the above-mentioned dissertation by I.N. Jamolhodzhi contains the following provisions on how oil was used by artisans in the Kokand Khanate. During the Khanate period, lining fabrics called “nafti” and “kora nafti” (black oil) were produced in the Fergana Valley. There were also such fabrics as “Nafti-i rasmi” (ordinary Nafti) and “Nafti beka sali”. Coats (tŷn, suzana) were made from “Nafti” fabric for nobles and princesses. Nafti cloth is added to Chilla Kochdi sarpo for women who have just given birth. For example, in 1872, for Sultan Murodbek, a rug was woven for underfoot during prayer and socks from Nafti fabric. Sultan Muradbek was the Bek of the Margilan region in the Khanate [7.P.42].

Local artisans and traders who lived in the Khanate extracted oil and made from it the necessary products for the needs of the population. After the liquidation of the Khanate of Kokand, the Russian Empire

appropriated the existing oil fields in the area and began searching for new oil fields.

In 1868, Russian merchants Khludov, Zakho and Gromov were the first to use the oil sources located in the territories of the Kokand Khanate. But these merchants quickly finished their work. They cited delivery costs and other unfavorable conditions as the reason. Russian merchants expected big profits, but it didn't pay off on their books. Therefore, they quickly finished the work [2.C.14].

The first geological research in Turkestan was carried out in the Fergana Valley. At the end of the 19th century, Russian geologists A.P. Fedchenko in 1871, N.A. Severtsev in 1873, I.V. Mushketov in 1876, G.D. Romanov in 1876, A.F. Middendorf 1882 went to the Fergana Valley in order to identify oil deposits and conducted geological research.

By the 1900s, geologists V.I. Weber, D.V. Golubyatnikov, V.D. Sokolov, V.A. Obruchev, K.P. Kalitsky conducted scientific research to identify new oil fields in the Fergana Valley. In 1912-1914, geologist K.P. Kalitsky compiled a geological map of the Mailisoy, Rishtan, Shorsuv and Selrokh areas in the Fergana Valley, where oil fields are located [16.P.10].

Before the revolution of 1917 in Russia, a number of private enterprises and artels were engaged in the search, exploration and exploitation of oil fields in Turkestan. They carried out exploration of deposits

based on research, assessments and analyzes by V.I. Weber, D.V. Golubyatnikov, V.D. Sokolov, V.A. Obruchev, K.P. Kalitsky. Maps were also drawn up showing areas rich in oil. Russian entrepreneurs D.P. Petrov and A.D. Germanov, relying on these sources, cheaply bought some land plots in the Fergana Valley [3.P.109-110].

In 1880-1883, in the Lokan site, located in the Kamyshbashi region of the Fergana Valley, 4 oil exploration wells were dug, the remains of which are still preserved. These oil wells were percussively drilled to depths of up to 36.2 meters and a width of 219 mm (8 inches). There is information that from the first dug oil wells, from 5 to 12 tons of oil were extracted, and from wells 2-2.5 meters deep, 10 tons of oil were extracted per day. At that time, D.P. Petrov was the first entrepreneur to start industrial oil production. In 1885, D.P. Petrov bought several oil fields. In the same year, he discovered oil wells in Shorsuv at a depth of 35-40 meters and manually dug two wells in this field. Using a long bucket with a valve at the bottom, two workers from these wells extracted 400-500 kg of oil per day and 100-130 tons of oil per year. Entrepreneur D.P. Petrov built himself a small plant where he extracted kerosene by pumping oil. He sold separated kerosene in Tashkent, Andijan and other cities [17.P.18].

In 1898, a group of entrepreneurs led by engineer S.A. Kovalevsky began searching for oil fields in the area of

the villages of Chimion and Yarkotan in the Fergana Valley, relying on the recommendations of geologist-paleontologist G.D. Romanovsky. As a result, several wells were drilled using the percussion method. By 1901, the first well was drilled using a percussion method using a mechanized machine. In 1904, an oil reservoir 278 meters deep was discovered and oil flowed like a fountain. 130 tons of oil were extracted from this well per day [3.P.110].

Until now, oil was used as it seeped to the surface of the well. The need to build an oil refinery in the area arose as a result of oil seeping out of the ground. This year, construction of the first oil refinery in Central Asia began in the Fergana Valley near the Vannovsky station. This plant was built by railway engineer A.N. Kovalevsky and put into operation in 1906. As a result of oil refining at the plant, kerosene and fuel oil contained in oil were obtained [10.P.21]. The construction of this plant gave impetus to the development of the oil industry.

After the plant was put into operation, interest in the oil industry of the Fergana Valley increased, and foreign capital began to flow. By 1907, the Chimion oil field was purchased by the Nobel brothers, a firm involved in the oil industry in the Russian Empire. The Nobel brothers had extensive experience in the oil industry. The Nobel brothers company also took its place in the global oil industry. In 1878, the Nobel Brothers Company built the world's first tanker, the

Zoroaster, with a carrying capacity of 242 tons, and began transporting oil from Baku, Azerbaijan, to Tsaritsyn (Volgograd), Russia.

Professor Paul Stevens, an English researcher who studied the history of the international oil industry, compares the activities of the Nobel Brothers company with the activities of the Standard Oil Trust, owned by the famous American billionaire D. D. Rockefeller, and evaluates it as a competitor in Europe and the Russian Empire [1]. It can be seen that the Nobel brothers' company was able to compete with the world's leading companies and had its own experience. Based on this experience and large investments, the company of the Nobel brothers, after purchasing the Chimion oil fields, began research in this territory. In 1909-1910, as a result of exploration of the area, the Yarkhtan oil field was discovered near Chimion and oil production began. As a result of these studies, the oil industry of the Fergana Valley grew. The Nobel brothers' company existed until 1918, that is, until the nationalization of the mining industry of Turkestan.

The Chimion oil field was purchased by the Nobel brothers. Using sufficient experience, new technologies and foreign capital to develop the oil industry, the oil produced by drilling oil wells is sent to the oil refinery through special pipes using pumps. As a result, a new stage began in the oil industry. By 1913, the volume of oil production from the Chimion oil fields increased to 13 thousand tons. But during the First

World War, oil production declined. This was influenced by several factors.

Firstly, during the World War, the export of petroleum products decreased as a result of the closure of foreign trade routes due to the war.

Secondly, because of the war, the amount of capital invested in this sector decreased sharply, and therefore oil production decreased.

Third, the change in oil production volumes was also influenced by the involvement of skilled oil industry workers in the war.

Fourthly, as a result of the coup d'etat in the Russian Empire, indicators in this area decreased. For example, in 1916, 11,900,000 thousand pounds of oil were produced from oil wells in the Fergana Valley, and in 1917, 2,141,292 pounds of oil were produced from oil wells [12].

In addition to the Chimion oil fields in the Fergana Valley, by 1908, oil exploration work had begun near the village of Sel Rojo in the territory of modern Tajikistan and several oil wells were discovered. Oil extraction from identified oil wells by drilling has shown its effectiveness. As a result, oil was extracted from a depth of 245 meters, and in 1909 an oil refinery was built near the Melnikov station.

In 1912, a group of traders founded SANTO (Central Asian Petroleum and Trading Society) based on the Sel

Rojo oil field. During this period, this society was led by management located in the city of St. Petersburg. Drilling and oil production were carried out at an oil refinery built near the Melnikov railway station. By 1915, an oil refinery and processing plant was built. At the plant, kerosene and fuel oil were separated from

the oil composition and sent through pipes to the Melnikov station [10.P.20].

The volume of oil production from the oil fields of both plants located in the Fergana Valley decreased during the First World War. This situation can be observed based on diagram No. 1 [13].

Объем добытого сырья в нефтяных комплексах Чимион и САНТО
1905-1917 г.г. (тыс. пуд.)

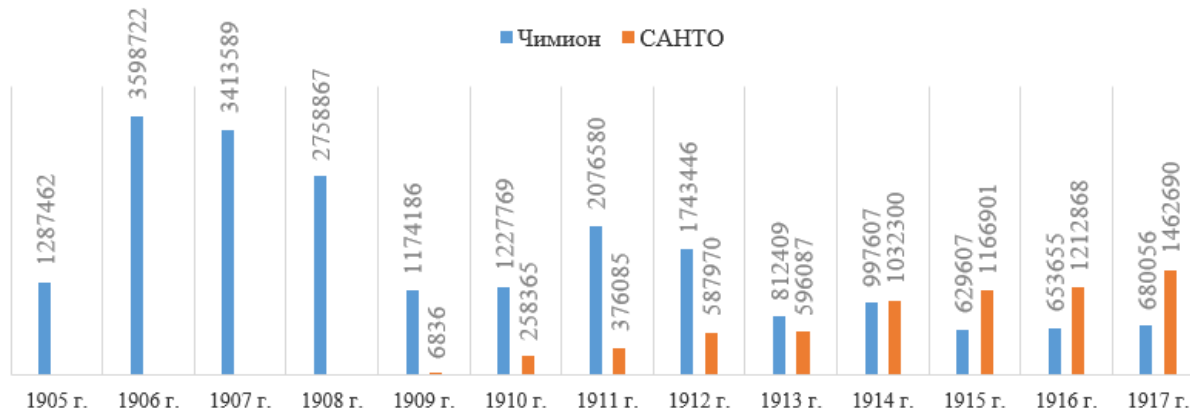


Diagram No. 1

If you pay attention to the indicators presented in the table, during the First World War, oil production volumes decreased sharply. This process was also due to the above factors. However, as a result of the development of transport and logistics, automobile manufacturing and other industries in the empire, the need for oil and petroleum products, particularly produced in the Fergana Valley, has increased. This process led to the development of oil refining technologies.

Since 1901, oil wells began to be drilled using mechanized methods. But, despite this, due to the fact that much of the work was done manually, in 1901-1917, 34,900 meters of drilling work was done in the Chimion, Yarkotan, SANTO areas of the Fergana Valley, which is an average of 2000 meters per year. [9.P.19]. This, in turn, indicates how complex the processes of extracting oil from wells were at that time.

By the 1910s, as a result of the start of oil drilling in the oil fields in the Fergana Valley by the Nobel brothers

with diesel engines “Ludwing Nobel”, “Poylar”, “Felzer”, “Otto Dietz”, local workers worked 12-14 hours a day. The company management allowed only Muslim oil workers who worked at the Chimion fields to return from work only on Eid al-Adha [7.P.96]. Before World War I, Russians, Iranians, Uzbeks, Tajiks, Kyrgyz, Kazakhs, Tatars and Armenians worked in the Chimion oil fields. During the First World War, prisoners of war of Czech, Austrian, Hungarian and German nationalities worked in temporary jobs. They were housed in miners' barracks. The largest building in the miners' barracks was the workers' building, which consisted of 8 separate houses located next to each other. Each work building accommodates 450-500 people. These houses housed Russians, Tatars, Iranians, later Czech prisoners of war, Hungarians,

Germans, as well as Uzbeks who came to work from distant villages [9.P.91].

In 1917, 68 wells with a depth of 280-300 meters were drilled at the Chimion, Yarkotan, SANTO oil fields in the Fergana Valley. Wells of this depth were drilled using the percussion method over a period of one and a half to two years. At the Chimion oil field, percussion drilling was carried out using iron rods using the Baku methodshock-rod drilling. At the Santo oil field, oil production was carried out using the Grozny methodshock-rope drilling[9.P.25]. In the period from 1904 to 1917, 437.3 thousand tons were produced in Turkestan, an average of 33.6 thousand tons per year and approximately 95 tons of oil per day, these figures can be seen in diagram No. 2. [9.P.26].

Объем нефтедобычи в Туркестане в 1885-1917 г.г. (тыс. тонн)

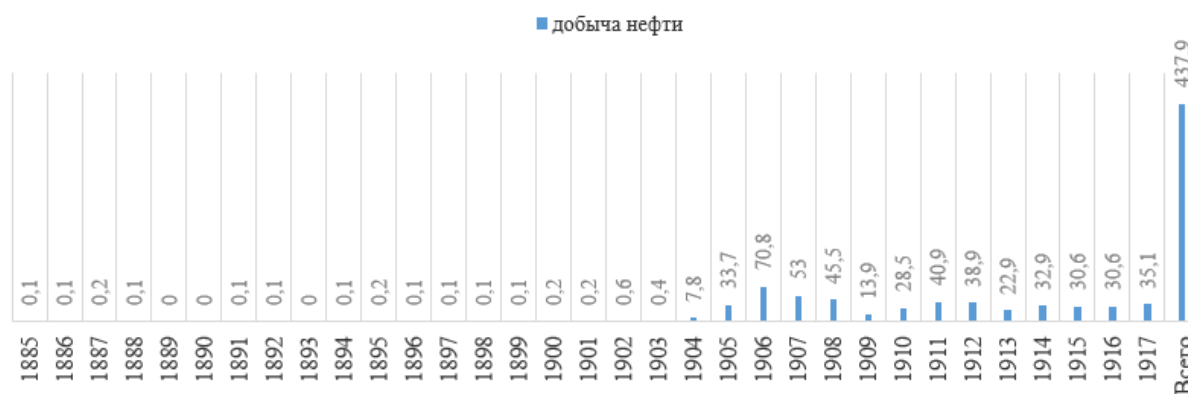


Diagram No. 2

As in many fields of the Russian Empire, oil production in the Fergana Valley was carried out by private

entrepreneurs without observing the usual rules of subsoil protection, which led to watering and

premature depletion of a number of oil wells. As a result, oil production at some fields was stopped [9.P.27].

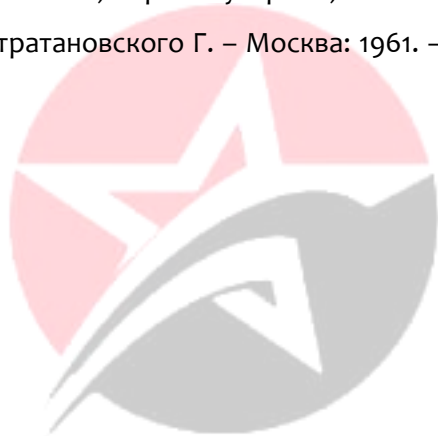
CONCLUSION

Thus, from the middle of the 19th century, that is, during the time of the Kokand Khanate and the beginning of the 20th century, the processes of oil production and refining in the Fergana Valley intensified. Local artisans and entrepreneurs, using primitive methods, collected oil from existing oil wells, prepared the necessary products for export abroad, while meeting the needs of the local population, and promoted oil extraction and refining. By the beginning of the twentieth century, oil drilling began. As a result of the introduction of foreign capital into the oil industry, the introduction of new methods and means of oil production, and the use of advanced experience in this area of industry, this industry grew. But during the First World War, the rate of oil production in the Fergana Valley decreased, as well as throughout the empire, as a result, Russia fell far behind the United States in competition in the world oil market.

REFERENCES

1. Stevens P. History of the International Oil Industry. In: Dannreuther R., Ostrowski W. (eds) Global Resources. Palgrave Macmillan, London.
https://doi.org/10.1057/9781137349149_2/
2. Абдуллаев Х.М. Ўзбекистон ер ости бойликлари социализм хизматида. – Тошкент: 1949. - 48 б.
3. Абидов А.А., Хайитов О.Ф., Холисматов И.Х. Нефть ва газ геологияси. – Тошкент: 2005. – 267 б.
4. Ахмадова Х.Х., Мусаева М.А., Сыркин А.М., Махмудова Л.Ш., Такаева М.А. Добыча, переработка и исследование грозненской нефти в течение XIX – начало XX веков: монография / – Москва: Издательский дом Академии Естествознания, 2018. – 146 с.
5. Бобобеков Ҳ. Қўқон тарихи. – Тошкент: Фан, 1996. – 240 б.
6. Брод. И.О. СССРнинг ер ости нефть ва газ бойликлари. – Тошкент: 1956. – 51 б.
7. Жамолхожи И.Н. Фарғона водийсида нефть саноатининг шаклланиш ва ривожланиш тарихи (1860-1917 йй.): тарих фанлари номзоди илмий даражасини олиш учун тайёрланган диссертация. Ҳимоя қилинган: 07.00.02. – Тошкент: 2004. – 150 б.
8. Лексашев Ф.П., Хуторов А.М. Нефтяная и газовая промышленность Узбекистана. – Москва: 1967. – 207 с.
9. Музапаров Ш. Культура и быт узбеков-нефтяников Ферганской долины: [Электронный ресурс] (URL) https://link.springer.com/chapter/10.1057/9781137349149_2 (дата обращения: 01.12.2022)

- диссертация на соискание ученой степени кандидата исторических наук. – Тошкент: 1967. - 265 с.
10. Муҳидов А.Р., Тожиев Т.Т. Ўзбекистоннинг қора олтини. – Тошкент: Фан, 1972. – 34 б.
11. Национальный архив Республики Узбекистан (НАРУз.) Ф.И-1, Оп.15. П.256. Л.4. об.
12. НАРУз. Ф. Р-101, Оп.1. П.17. Л. 45
13. НАРУз. Ф. Р-27, Оп.1. П.1119. Л.67-71
14. Плутарх. Александр и Цезарь. Перевод Ботвинник М., Перельмутера И., Лампсакова К. и Стратановского Г. – Москва: 1961. – 494 с.
15. Федченко А.П. Путешествие в Туркестан. – Москва: 1875. – 177 с.
16. Ходжаев А.Р., Акрамходжаев А.М., Азимов П.К., Муҳидов А.Р., Ким Бен Чан, Адылов А.Т. Нефтяные и газовые месторождения Узбекистана. Книга 1. Ферганская межгорная впадина. – Тошкент: Фан, 1973. – 199 с.
17. Эргашев Й., Абдуллаев Ғ.С., Қодиров М.Х., Холиматов И.Х. Нефть ва газ конлари геологияси. Дарслик. – Тошкент: “Шарқ”, 2008. – 479 б.
18. Эргашева Х. Фарғона вилоятида нефть саноатининг шаклланиши // ЎзМУ хабарлари. – 2022. № 1/2/1. –С. 48-52.



OSCAR
PUBLISHING SERVICES