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Lilija Wedel*

Oil Rush in the Imperial Baku: Reciprocal Impacts between Industry, Environment, and Urbanisation

IZVLEČEK

NAFTNA MRZLICA V BAKUJU V ČASU RUSKEGA IMPERIJA: VZAJEMNI VPLIVI INDUSTRIJE, OKOLJA IN URBANIZACIJE

Članek obravnava hitro širitev naftne industrije v Bakuju in njegovi okolici v poznem obdobju Ruskega imperija ter njen vpliv na industrijski razvoj, spremembe v okolju in urbanizacijo. Na podlagi tedanjih časopisov, oglasov, poslovnih publikacij in strokovnih virov je naftni razcvet v Bakuju umeščen v širše razprave o industrializaciji Ruskega imperija in mejnikih izkoriščanja virov. Prispevek zagovarja trditev, da so pridobivanje, predelava in prevoz nafte ne le spodbudili gospodarsko rast in posodobitev infrastrukture, temveč so povzročili tudi znatne pritiske na okolje. Onesnaževanje, nevarnost požarov in logistične ovire so se izkazali za osrednje izzive, ki so oblikovali občinske politike, regulativne prakse in javno razpravo. Posebna pozornost je namenjena vlogi časopisov in strokovnih publikacij pri širjenju tehničnega znanja, opredeljevanju okoljske problematike in vplivanju na razprave o urbanističnem razvoju. Članek z združevanjem pristopov iz okoljske, podjetniške in urbane zgodovine pokaže, da je bila industrijska ekspanzija v Bakuju vzajemen proces, v katerem so se gospodarska rast, okoljske spremembe in upravljanje razvijali ob neprestanih medsebojnih vplivih. Primer Bakuja ponuja širši vpogled v delovanje gospodarstva v Ruskem imperiju, ki je temeljilo na izkoriščanju naravnih virov, ter v družbeno-ekološke posledice hitre industrializacije v poznem devetnajstem in zgodnjem dvajsetem stoletju.

Ključne besede: naftna industrija, Ruski imperij, Baku, okoljska zgodovina, urbanizacija, sistemi izkoriščanja virov

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ABSTRACT

This article examines the rapid expansion of the oil industry in and around Baku during the late Russian Empire and its effects on industrial development, environmental change, and urban transformation. Drawing on contemporary newspapers, advertisements, corporate publications, and technical sources, it situates the Baku oil boom within broader debates about imperial industrialisation and resource frontiers. The article argues that oil extraction, refining, and transport not only stimulated economic growth and infrastructural modernisation but also generated significant environmental pressures. Pollution, fire hazards, and logistical bottlenecks emerged as central challenges that shaped municipal policies, regulatory practices, and public debate. Particular attention is paid to the role of newspapers and professional publications in disseminating technical knowledge, framing environmental problems, and influencing discussions of urban development. By integrating approaches from environmental, business, and urban history, the article demonstrates that industrial expansion in Baku was a reciprocal process in which economic growth, environmental transformation, and governance evolved in constant interaction. The case of Baku offers broader insights into the functioning of imperial resource economies and the socio-ecological consequences of rapid industrialisation in the late nineteenth and early twentieth centuries.

Keywords: oil industry, Russian Empire, Baku, environmental history, urbanisation, resource regimes

Introduction: The Baku Oil Phenomenon in the Imperial Context

Recent scholarship has shown that industrial expansion in the distant regions of empires cannot be understood solely as economic growth. Rather, it must be conceptualised as a socio-ecological process in which resource extraction, technological innovation, state regulation, migration, and environmental transformation jointly produced new regimes of economy, labour, ecology, governance, and everyday life.¹

¹ See Corey Ross, *Ecology and Power in the Age of Empire* (Oxford: Oxford University Press, 2017), esp. 1–14. Brian C. Black, *Petrolia. The Landscape of America's First Oil Boom* (Baltimore: Johns Hopkins University Press, 2000). John R. McNeill, *Something New Under the Sun* (New York: W.W. Norton, 2000), esp. chapter 3, S. Andreas Heinrich and Heiko Pleines, eds., *Challenges of the Caspian Resource Boom. Domestic Elites and Policy-Making* (Basingstoke: Palgrave Macmillan, 2012). Jason W. Moore, *Capitalism in the Web of Life. Ecology and the Accumulation of Capital* (London: Verso, 2015), 111–40, 221–40. See also Judith Pallot and Denis J. B. Shaw, *Landscape and Settlement in Romanov Russia, 1613–1917* (Oxford: Clarendon Press, 1990). Brent Hierman, “Colonial Legacies and Global Networks in Central Asia and the Caucasus,” in Zak Cope and Immanuel Ness, eds., *The Oxford Handbook of Economic Imperialism* (New York: Oxford University Press, 2022), 635–54. Maya K. Peterson, *Pipe Dreams. Water and Empire in Central Asia's Aral Sea Basin* (Cambridge: Cambridge University Press, 2019).

Classic interpretations of nineteenth-century capitalism already emphasised the structural character of these transformations. Braudel conceptualised capitalism as a multilayered system grounded in material infrastructures and the long-term reshaping of economic space,² while Polanyi highlighted the tensions arising from the commodification of land and nature.³ These perspectives offer a useful framework for analysing the socio-ecological dynamics of industrial expansion in imperial borderlands.⁴ Recent approaches in global, imperial, and business history have further underscored the asymmetrical dynamics⁵ of economic transformation and the role of local actors, experts, and media in shaping industrial development and regulatory practices.

Building on these perspectives, this article examines how the rapid expansion of the Baku oil industry transformed not only production and investment patterns but also urban environments, public infrastructure, and debates about environmental risk. Rather than treating industrial growth and ecological change as separate developments, it analyses their reciprocal relationship and explores how economic actors, municipal authorities, experts, and the press responded to the challenges posed by the oil boom.

Historical Background and Industrial Expansion

The oil boom in and around Baku – one of the most important centres of the Russian Empire in the South Caucasus and often compared to the gold rush in Alaska⁶ – began in the 1870s,⁷ bringing large inflows of capital, technical innovations, and skilled workers. It stimulated diverse industrial sectors and new businesses, fostered

2 Fernand Braudel, *Civilization and Capitalism 15th – 18th Century*, Vol. 1–3, trans. Siân Reynolds (Berkeley: University of California Press, 1992), esp. Vol. II, chapters 1–3. Hobsbawm, in turn, highlighted how the “long nineteenth century” witnessed the growing integration of “peripheral regions” into global circuits of industrial production, finance, and imperial power. – Eric Hobsbawm, *Das lange 19. Jahrhundert*, Bd. 2: *Das imperiale Zeitalter 1875–1914*, trans. Johann George Scheffner (Darmstadt: Wissenschaftliche Buchgesellschaft, 2017), 51–112; Bd. 3: *Die Blütezeit des Kapitals, 1848–1875*, trans. Udo Rennert (Darmstadt: Wissenschaftliche Buchgesellschaft, 2017), 78–79, 238–39, 256–57, 379.

3 Karl Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time* (Boston: Beacon Press, 2001 [1944]), chapters 6, 14, 15.

4 For the connections between politics and environmental economics, cf. the notes in Nicolas Breyfogle, “Toward an Environmental History of Tsarist Russia and the Soviet Union,” in Nicolas Breyfogle, ed., *Eurasian Environments. Nature and Ecology in Imperial Russia and Soviet History* (Pittsburg: University of Pittsburg Press, Russian and East European Studies, 2018), 3–20.

5 See, e.g., Sven Beckert, *Capitalism. A Global History* (New York: Penguin Press, 2025). Akira Iriye and Jürgen Osterhammel, *Geschichte der Welt*, Bd. 5: 1870–1945. *Weltmärkte und Weltkriege* (München: Beck, 2018).

6 Cf. Jeronim Perović, *Rohstoffmacht Russland. Eine globale Energiegeschichte* (Köln: Böhlau, 2022), 24, 29, 35. Before 1900s, the US-American Standard Oil as a main deliver competed with Shell, Branobel, Rothschilds. See also Ljudmila A. Murav'yeva, “Ekonomicheskoe razvitiye Rossii vo vtoroi polovine XIX – nachale XX veka,” *International Accounting* 20, No. 21 (2017): 1271–86.

7 Whereas the mechanical extraction method was certified in 1847, the first (primitive) oil refinery was established by V. Kokorev, P. Gubonin, and Baron N. E. Tornau in 1859. Kerosene was produced for the first time in 1863 at the Javad Melikov plant, where refrigerators were first employed in the processing. For the developments before 1870s and prominent biographies in the oil history, see Miryusif Mirbabayev, *Concise History of Azerbaijani Oil* (Baku: Azerbaijan State Publishing House, 2008).

the establishment of multinational companies, and accelerated the development of urban infrastructure⁸ and a quasi-national bourgeoisie. At the same time, these transformations also led to social tensions, especially between ethnic groups in Baku, like Azeris and Armenians.⁹

By the end of the nineteenth century, the Tsarist Empire had surpassed the United States in oil production, largely owing to the rich resources discovered in and around Baku – then the principal oil centre of the Russian Empire in the South Caucasus.¹⁰

Table 1: Development of oil production in the Baku region, 1883–1913 (in thousands of poods)¹¹

Year	Amount of oil production / thousand pood (62,5 pood = 1 ton)
1883	60376
1884	90230
1886	123500
1890	240400
1892	296500
1896	408800
1900	603764
1901	671576
1903	467000
1910	499000
1913	449400

As Table 1 shows, oil production in the Baku region expanded at an extraordinary pace from the 1880s to the turn of the century. Output rose more than tenfold between 1883 and its peak in 1901, reflecting the combined effects of foreign investment, technological innovation, and expanding transport infrastructure. Although production declined after 1901, it remained at a very high level until the eve of World War I. This rapid growth not only consolidated Baku’s position within the global petroleum economy but also intensified pressures on urban infrastructure, public health, and the

8 See also Dominik Gutmeyr, “The Oil Boom and the Beginnings of Photography in Imperial Baku,” in Biljana Ristovska-Josifovska, ed., *Migration, Knowledge Exchange and Academic Cultures in Europe and the Black Sea Region until World War I* (Skopje: Institute of National History, 2021), 319–36.

9 Cf. Verena Dohrn, *The Kahans from Baku. A Family Saga*, trans. Uri Themal (Boston: Academich Studies Press, 2022), 98. For the first group, the Russian government was “a foreign regime,” whereas for the second group, it represented “the hope of gaining more freedom”.

10 Cf. Marius S. Vassiliou and Mir-Yusif Mir-Babayev, *US and Azerbaijani Oil in the Nineteenth Century. The Two Titans* (Lanham: Lexington, 2023). See also Daniel Yergin, *The Prize. The Epic Quest for Oil, Money and Power* (London: Simon & Schuster, 1991), chapter 3.

11 From “Baku i neft’. Period promyshlennoi neftedobychi,” in *Okno v Baku*, accessed on 10 October 2025, <https://www.window2baku.com/oil2.htm>.

local environment, thereby contributing to the challenges discussed in the following sections.

The development of Baku's oil industry unfolded through a series of key milestones that illustrate both rapid production growth and the establishment of local entrepreneurial networks.¹² The joint-stock company *Kavkaz i Merkurii* began transporting oil by ship, marking the start of a more organised industrial infrastructure. Mechanised drilling was introduced in Balakhani in the early 1870s. Infrastructure development accelerated with the construction of the first oil pipeline connecting Balakhani to the Nobel refinery in 1878, and the opening of Baku's first power station in 1880, which illuminated the docks, although kerosene lamps continued to light the city streets.

The expansion continued with major projects such as the Baku–Batumi pipeline (1896–1906), which spanned 833 kilometres and carried up to 900,000 tons annually, and the emergence of media specialised in oil, exemplified by the first periodical, *Neftyanoe delo*, published in 1899. By 1901, Baku accounted for roughly 51.4 per cent of global oil extraction or production. Technical innovation continued with the introduction of rotary drilling in 1911, but by 1913 the region hosted around 3,500 wells, and its share of global output had declined to 18.1 per cent.¹³ The outbreak of war and the closure of the Dardanelles Straits in 1914 effectively ended oil exports from Batumi, resulting in the loss of Western European and Near Eastern markets.

This chronology demonstrates how technological innovation, foreign and local capital, and infrastructure investment combined to transform Baku into a leading industrial centre, while also setting the stage for social, environmental, and urban transformations that characterised the city in the late imperial period.

At the same time, the concentration of oil production in a geographically limited area intensified environmental pressures and made the management of industrial risks an increasingly central concern for municipal authorities, engineers, and the local press.

Modern marketing strategies and print media accompanied industrial expansion and played an important mediating role. Newspapers reported on technological innovations, monitored environmental hazards, and disseminated practical advice and criticism. In doing so, they helped shape industrial practices, public debates, and urban development. In 1900, the Russian Empire accounted for 50.8 per cent of global oil production; by 1910 this figure had declined to roughly 20.4 per cent,¹⁴ driven by the depletion of mature oil fields, increasing global competition, market concentration by major firms such as *Branobel* and *Royal Dutch Shell*, logistical and technical con-

12 Cf. John P. McKay, "Entrepreneurship and the emergence of the Russian petroleum industry," *Research in economic history* 8 (1983): 47–91. See also John P. McKay, "Restructuring the Russian Petroleum Industry in the 1890s. Government Policy and the Market Forces," in Linda Edmondson and Peter Waldron, eds., *Economy and Society in Russia and the Soviet Union, 1860–1930. Essays for Olga Crisp* (London: Palgrave Macmillan, 1992), 85–106.

13 For more statistics prior to 1900, see e.g. Georgiy E. Startsev, *Bakinskaya neftyanaya promyshlennost': Istoriko-statisticheskii ocherk* (Baku: Tipografiya Aror, 1901), statistical section.

14 Quoted in "Neftyanoi otdel," *Kaspii*, 4 November 1911, 5.

straints, and the disruptive effects of the Russian Revolution of 1905, labour unrest, and interethnic conflicts in Baku (the Armenian-Azerbaijani massacre in 1905).

During his visits to Baku in 1859 and 1861, the Georgian writer and translator Ivan I. Evlakhov (1829–1888) observed that one could already sense the city's extraordinary future on the Absheron Peninsula in the Caspian region. He described a place endowed with a remarkable abundance of natural resources: a fine harbour and "eternal flames" on one side, and oil wells, salt deposits, sulphur, and diverse minerals on the other – conditions that, in his words, rendered Baku almost "a businessman" in itself.¹⁵

Yet these favourable circumstances were accompanied by significant risks. Geophysical hazards, including landslides and earthquakes, periodically disrupted transport routes – especially railways – as reported in local newspapers, thereby delaying production and distribution and causing financial losses.¹⁶

For many visitors, the industrial scale of Baku's oil fields provoked ambivalent or even negative impressions.¹⁷ Given the region's geophysical challenges, its distance from imperial centres such as Moscow and St Petersburg, and recurrent interethnic competition, one might have expected infrastructural stagnation. However, the press and advertising – by 1910 accounting for up to half of the content in some newspapers – painted a different picture. They reveal that major South Caucasian cities such as Baku and Tbilisi offered a striking variety of consumer goods and services and were increasingly perceived, both visually and culturally, as spaces that combined "oriental flair" with European modernity.¹⁸

The rapid expansion of the oil industry in imperial Baku – although oil had been known and exploited in the region since antiquity – was made possible by technological innovation,¹⁹ the extension of transport networks (above all, the Baku–Batumi railway, which was especially important for exports abroad), substantial foreign investment²⁰ – most prominently by the Nobel brothers²¹ from 1876 and the Rothschilds from 1883²² – and, not least, by the ambitions of local entrepreneurs such as M. Nagiev (1842–1919), Sh. Asadullaev (1840–1913) and G. Z. Tagiev (1838–1924, who founded the first oil company in Baku in 1872.²³ Above all, Tagiev's engagement with European cultural models was publicly visible in architecture, philanthropy, and edu-

15 Ivan I. Evlakhov, "Nedelya v Baku," *Kavkaz*, No. 98, 1861.

16 Cf. e.g. the announcement by the Transcaucasian Railway Administration in *Bakinskaya Izvestiya*, 1 March 1887, 1.

17 Cf. Lilija Wedel, "Erkundungs- und Abenteuerreisen durch Kaukasus und Zentralasien. Visualisierung und Rezeption des Ostens in den 1880er und 1920er Jahren," in *INDES. Zeitschrift für Politik und Gesellschaft* 13, 2/3 (2025): 48–54, here 52.

18 Cf. Lilija Wedel, "German Advertisements in the Late Russian Empire as a Reflection of Consumer Policies, Culture, and Communication," in Magdalena Eriksroed Burger, Heidi Hein-Kircher, and Julia Malitska, eds., *Consumption and Advertising in Eastern Europe and Russia in the Twentieth Century* (Cham: Palgrave, 2023), 55–81, here 70–71.

19 The development of new drilling technologies was driven by commercialisation and the growing demand for cost-effective energy sources, particularly for lighting. – Perovič, *Rohstoffmacht*, 25.

20 Cf. Perovič, *Rohstoffmacht*, 34. The new transport routes enhanced the attractiveness of investments and encouraged the activities of foreign entrepreneurs.

21 Nobel owned the first seaworthy oil tanker since 1878, tank wagons since 1881, and his own oil trading fleet.

22 By 1890, 42 percent of Baku's total oil exports were controlled by his company.

23 See also Eva-Maria Auch, *Öl und Wein am Kaukasus: deutsche Forschungsreisende, Kolonisten und Unternehmer im vorrevolutionären Aserbaidschan* (Wiesbaden: Reichert, 2001).

cational initiatives, exemplified by his residence and office building, now the National Museum of the History of Azerbaijan, as well as by his patronage of theatre culture and female education.

The interaction between foreign capital and local entrepreneurial elites thus created a hybrid economic environment in which imperial structures, transnational investment, and regional initiatives jointly shaped industrial modernisation and urban development.

Environmental Challenges, Regulatory Frameworks, and Industrial Responses

The rapid expansion of the oil industry in Baku quickly exposed the limits of existing regulatory frameworks. Environmental hazards, infrastructure bottlenecks, and intense competition forced imperial authorities, municipal institutions, and industrial actors to develop new forms of governance and coordination.

The first major attempts to establish a regulatory framework for the oil industry were made in 1871 and 1872, when two laws were enacted: *On Excise Taxes on Oil Wells and Oil Products* and *On the Sale of Oil Lands Held by Leaseholders to Private Individuals*. State-owned oil fields were leased for twenty-four months. Tenants were permitted to export the oil they discovered at prices of their own choosing, and net profits could reach approximately fourteen to fifteen per cent. In 1874, the first joint-stock company, the *Baku Oil Society*, was founded.

From the outset, however, intense competition characterised oil production and distribution at the regional level²⁴ – both between districts within the Baku Governorate and among local and foreign entrepreneurs. This asymmetry was particularly evident in the division of labour within the industry. Financially powerful firms such as *Branobel*, even without their own producing wells, could secure high profits by investing in refining, storage, and distribution networks, whereas many Azerbaijani entrepreneurs remained primarily focused on crude extraction.²⁵ This division of labour not only reflected differences in capital resources but also shaped the industry's technological and environmental organisation, as extraction, refining, and transport generated distinct risks and regulatory challenges.

Cooperation and communication among government agencies, municipal authorities, scientific circles, and business communities were nevertheless highly developed at both local and imperial levels. The newspaper *Bakinskiya Izvestiya*²⁶ (Baku News), an influential organ of the Russian oil industry, reported in November 1887 on a petition by owners of private tank wagons requesting state intervention with the railway

24 In 1910, a decision was taken in Baku to establish a separate trading association for petroleum products. – “Vechernyaya khronika,” *Kaspii*, 28 April 1910, 2–3. Also “Mestnaya khronika,” *Kaspii*, 14, 19 January 1911, 5.

25 A. M., “Neftyanoe delo,” *Kaspii*, 5 July 1881, 3.

26 From 1876 to 1886; since 1888 as *Bakinskii torgovo-promyshlennyj listok*.

board to increase hauling capacity. Industrialists complained that of the 5,000 wagons ordered, only 871 had been delivered. The matter was debated in the city council at the initiative of the local stock exchange committee, which in turn insisted that the railway administration was obliged to meet these demands – especially since the Ministry of Transport had authorised wagon construction.²⁷

Press coverage of such disputes played an important role in transforming logistical difficulties into public issues and in mobilising political pressure for infrastructural improvements.

Transport bottlenecks were among the principal structural constraints on Baku's oil industry. According to Kaspij, in July 1881, the main brake on production and distribution was a chronic shortage of rolling stock and transport capacity.²⁸ Its "Oil Business" column observed that, apart from the Nobel cooperative and a few large firms able to rely on private reserves, most factories in the Black City stood idle or operated at only half capacity.²⁹

Even in the 1910s, industrialists continued to seek logistical solutions in collaboration with railway officials. They inspected transport equipment at suppliers' plants and along entire routes to ensure that the right tanks were used for products such as kerosene and mazut (fuel oil).³⁰ Misuse was common: kerosene was sometimes poured into boilers designed for heavy fuel oil, rendering entire shipments unusable and causing substantial financial losses.³¹

Imperial authorities maintained close administrative control over oil extraction through concession policies, tariff regimes, and statistical reporting requirements.³² Under the Mining Law of 1872, drilling owners were required to submit annual statistical reports on all operations and development plans to the Mining Office and to notify officials immediately of any accidents.³³ Although the abolition of local production taxes in 1876 facilitated the establishment of new plants, contemporaries worried about distortions in competition and the growing concentration of capital.

These concerns became particularly evident in 1881, when the local branch of the Imperial Russian Technical Society debated³⁴ proposals to tax crude oil and waste residues – black or dark-green by-products – at one rouble per pood (approximately 16.38 kilograms), as suggested by the process engineer V. I. Ragozin.³⁵ He argued that,

27 "Baku, 8 noyabrya," *Bakinskiya Izvestiia*, 8 November 1887, 1–2.

28 A. M., "Neftyanoe delo," *Kaspij*, 5 July 1881, 3.

29 Large-scale exports were not anticipated; contemporaries nevertheless assumed that the situation would stabilise prices on the Russian market, as otherwise prices would have been bound to decline. – Ibidem.

30 "Neftyanoi otdel," *Kaspij*, 14 April 1910, 5.

31 Ibid.

32 Cf. Dohrn, *The Kahans*, 83. See also Timothy Mitchell, *Carbon Democracy: Political Power in the Age of Oil* (London: Verso, 2011), esp. chapter 1–3, also 5.

33 Cited in *Bakinskiya Izvestiia*, 1 February 1887, 1–2.

34 Its primary medium (specialist publication) was *Trudy Bakinskogo otdeleniya Imperatorskogo russkogo tekhnicheskogo obshchestva* (Proceedings of the Baku Branch of the Imperial Russian Technical Society) (Baku: Tip. gazety Kaspiiskoe more, 1886–1914). The journal was published until 1917.

35 Experiments with oil since 1873 in N. Novgorod; in 1876, he moved to Balakhani (around Baku) and founded a lubricating oil plant; in 1878, he received an award at the exhibition in Paris.

in an era of mounting monopolisation and intensive resource exploitation, the state needed a careful fiscal strategy, particularly given the industry's potential contribution to the imperial budget. Oil revenues, he claimed, might eventually cover as much as one-third of state expenditures, equivalent to military spending. Other specialists questioned whether tax-free exports would intensify foreign competition, allowing overseas producers to benefit from Russian waste products by refining them into kerosene and lubricants in their own plants.³⁶

These debates illustrate how technical experts, industrialists, and state officials jointly discussed the economic and environmental consequences of large-scale oil extraction, treating waste products and pollution as fiscal and regulatory concerns.

New railway lines, Kaspij suggested, could help resolve these problems by channelling production directly into other industrial sectors.³⁷ Entrepreneurs themselves increasingly recognised – especially during the 1891 oil crisis – that only high-quality products could secure long-term competitiveness in international markets.³⁸

The discussions demonstrate that the rapid industrialisation of Baku's oil sector not only stimulated economic growth but also fostered new forms of coordination among industry, experts, and state authorities. Environmental risks, infrastructural constraints, and fiscal considerations thus became central to the emerging regulatory regime of the imperial oil frontier.

Technological Innovations, Knowledge Transfer, and Environmental Adaptation

Technological innovation in Baku's oil industry arose from the interplay of foreign investment, local environmental conditions, and imperial regulatory frameworks. The development and transfer of technical knowledge were therefore closely tied to the practical challenges of extraction, transport, and refining in a difficult natural environment.³⁹

In the last third of the 19th century, foreign entrepreneurs in the Tsarist Empire generally prospered under the trade privileges of 7 June 1860, which equated their rights with those of Russian citizens. Consequently, their marketing strategies were aligned with the same legal framework. Evidence from contemporary media shows that, for example, German migrants and settlers were particularly active as proprietors, operators, members of stock companies, agents, and distributors of foreign firms.⁴⁰ Notable examples include Gustav List (1835–1913), founder of a trading company and mechanical factory (machines and tools for agriculture and railways) in Baku in

³⁶ "Neftyanoe delo," *Kaspii*, 4 April 1881, 3–4.

³⁷ Ibid.

³⁸ Here a reference to Ragozin.

³⁹ Cf. Mitchell, *Carbon Democracy* and McNeill, *Something New Under the Sun*.

⁴⁰ See, for example, "An unsere Leser," *Kaukasische Post*, 18 June 1906, 1 and *Bakinskij spravocnyj kalendar' na 1897* (Baku: Aror, 1896), 22, 63–66.

1893, with branches for *Grusonwerk Buckau-Magdeburg* since 1890, and Rudolf Kaiser, “the sole representative of the English engineering plant Robey & Co., Lincoln, for Transcaucasia and Transcaspia”.⁴¹ These actors served as important intermediaries in the transfer of industrial technologies, managerial practices, and marketing strategies between Western regions and the oil fields of the South Caucasus.

Entrepreneurs faced considerable local challenges. As the German historian Dohrn has shown in her reconstruction of the Jewish Kahan family’s business history, “entrepreneurs first had to learn how to deal with the Baku oil, as it reached the surface with eruptive force”.⁴² Geophysical factors – including climatic and weather conditions – posed significant obstacles to extraction and logistics.⁴³ These conditions required constant technological adaptation and contributed to the experimental character of oil extraction in the region.

Transport of oil products to domestic markets, e.g., via the Volga–Don route or via Astrakhan and the Caspian Sea, was seasonally constrained. Before pipelines, transporting oil in barrels by cart to kerosene factories was highly unreliable because of weather conditions;⁴⁴ only with the introduction of pipelines did kerosene become widely accessible, even in rural areas (e.g., in 1870, 1 pood = 1.50 roubles; 1899–1901, 10–12 kopeks).⁴⁵ The introduction of pipelines therefore represented a decisive infrastructural innovation that transformed both the scale and the reliability of oil distribution.

Environmental concerns were already evident: water pollution⁴⁶ and drinking-water scarcity affected both the local population and small-scale producers. Many entrepreneurs appeared indifferent to these impacts, including workplace safety. Such incidents reveal the growing tension between rapid industrial expansion and the urban region’s environmental limits. The *Kaspjii* newspaper repeatedly reported incidents, including one in which Br. Melikov and Juzbashev used unsuitable water during operations, endangering workers and machinery and ultimately leading to criminal charges against the owners.⁴⁷

Meanwhile, the government emphasised the rational use of oil – including maximising the efficiency of combustible materials⁴⁸ – and promoted oil fuel over wood and coal, relying on technicians and inventors to devise appropriate solutions.⁴⁹ A key objective was the rational use of energy resources, particularly the preservation of forest reserves while promoting oil as an alternative fuel.⁵⁰

41 *Kaspjii*, 17 May 1895, 3.

42 Dohrn, *The Kahans*, 84.

43 Ibid.

44 Cf. i.a. Evgenij Markov, *Rossija v Srednei Azii, Očerki putestestviya po Zakavkaz’yu, Turkmenii, Bukhare, Samarkandskoi, Tashkentskoi i Ferganskoi oblastyam, Kaspiiskomu morju i Volge*, Vol. I. (S.-Peterburg: Tip. M. M. Stasjuleviča, 1901), 145–46.

45 Markov, *Rossija v Srednei Azii*, 146.

46 Evlakhov, “Nedelya”.

47 “Mestnye Izvestiya,” *Kaspjii*, 5 July 1881, 2–3.

48 A. M., “Neftyanoe delo,” *Kaspjii*, 22 July 1881, 2–3.

49 “Neftyanoe delo,” *Kaspjii*, 19 July 1881, 2–3.

50 Ibid.

Technical knowledge and workforce skills were critical to production quality. Lubricating oil production,⁵¹ which requires precise thickness and the absence of odour, often failed due to insufficient expertise or managerial negligence. Owners sometimes rushed young specialists or employed unscrupulous operators, known as “*chevaliers d’industrie*”. By contrast, as the press noted, Western companies gradually achieved high-quality production through sustained experimentation, allowing even junior technicians to gain on-the-job experience.⁵² At the 1884 meeting of Russian oil industrialists, Ragozin proposed new distillation methods using petrol fumes. By 1886, regulations required the inspection and verification of new distillation stills to ensure operational efficiency.⁵³

Experts – including geologists, mining engineers, chemists, and lab technicians – and specialist publications played crucial roles in informing and supporting the oil industry.⁵⁴ These expert networks formed an important knowledge infrastructure that underpinned industrial expansion and facilitated the diffusion of technical innovations. For instance, the mining engineer N. A. Sokolovskii, head of the Geological and Technical Bureau in Baku, advised on drilling, oil-field estimates, and pipeline planning.⁵⁵ Even the chemist D. I. Mendeleev recommended, as early as 1863, that industrialists use pipelines to transport crude oil, thereby improving efficiency compared with barrels.⁵⁶ Mendeleev’s recommendation illustrates how scientific expertise contributed directly to the modernisation of industrial transport systems.

Large-scale companies, such as *Branobel*, could afford their own technical boards and chemical laboratories, enabling continuous plant improvement, high-quality production, and efficient management of pipelines and logistics. Their technological and organisational capabilities illustrate the advantages of vertically integrated companies in managing both production and environmental risks.

Technological innovation in Baku’s oil industry therefore arose from the interplay of environmental constraints, international knowledge networks, and imperial economic policies. The transfer of expertise and technical experimentation not only increased production efficiency but also reshaped the oil region’s environmental and infrastructural landscape.

51 Oil residue refining process using purification by acid and water rinse – a production process almost identical to that of of kerosene.

52 A. M., “Neftyanoe delo,” *Kaspii*, 10 July 1881, 3–4.

53 Cited from the announcement pursuant to the “Resolution of the Committee for the Allocation of Tank Cars,” *Bakinskiya Izvestiya*, 8 January 1887, 1.

54 Cf. e.g. announcement of a Mining Engineer N. A. Sokolovskii and advertisement for the technical book in *Bakinskiya Izvestiya*, 3 May 1887, 1, 8.

55 Ibid.

56 Markov, *Rossiya v Srednei Azii*, 162–63.

Urban Infrastructure and Social Transformation

The concentration of oil production in Baku's industrial district, known as the "Black City", profoundly reshaped the city's urban infrastructure. The proximity of refineries, storage facilities, and workshops spurred the construction of additional industrial installations and factories serving related sectors,⁵⁷ such as steam mills and mechanical workshops.⁵⁸ It likewise encouraged the expansion of transport lines and the erection of housing blocks for workers. Beyond this industrial zone, large-scale entrepreneurs from both local and foreign groups invested heavily in Baku's urban infrastructure, including tramways, water supply,⁵⁹ hotels, sites of consumption, street paving, electric lighting,⁶⁰ and waste disposal systems. Thus, oil capital contributed not only to industrial expansion but also to the modernisation of urban services and public infrastructure.

By contrast, as the *Kaspij* newspaper noted on 1 January 1913 in its review of the previous year, the city council had shown passivity and negligence in implementing planned projects and measures for sewerage, road paving, tramlines, the construction of covered markets, healthcare improvements, and the enhancement of living conditions on the city's outskirts; many of these initiatives remained largely unimplemented.⁶¹ Such criticisms highlight the tension between rapid industrial growth and the limited administrative capacity of municipal authorities.

Overall, Baku presented an ambivalent picture. On the one hand, oil production – into which other sectors, numerous workers, and new specialists were integrated – opened up new perspectives for economic development in other parts of the region as well. Together with other branches of industry and trade, oil industrialists contributed to the expansion of infrastructure in the countryside and in provincial district towns, for example, through the construction of industrial workshops, consumer cooperatives, and transport networks. Within these processes, even if not everywhere and not among all segments of the rural and provincial population, new interests, needs, patterns of behaviour, and working practices emerged that increasingly resembled those of urban environments. These developments indicate that the oil boom not only transformed Baku itself but also stimulated processes of economic and social change across the wider region.

Advertising and the expanding urban press played important roles in these processes of technological transfer and consumption,⁶² reflecting the arrival of technologi-

57 In 1897, there were 4.000 commercial and industrial enterprises in Baku. Bakinskii spravochnyi kalendar' na 1897 god, otd. Torgovli i promyshlennosti, 3. In 1903, in Government Baku – 2.460 factories and operations, 173 – in Baku. – *Obzor Bakinskoi gubernii za 1904 god. Prilozhenie ko vsepoddaneishemu otchetu* (Baku: Tip. Gubernskogo pravleniya, 1905), No. 3, Vedomost' o chisle fabrik i zavodov v Bakinskoi gubernii za 1904 god.

58 "Mestnye Izvestiya," *Kaspij*, 5 July 1881, 2.

59 As by Tagiev. Cf. e.g. Rudolf Gil' (Rustam K. Aleskerov), *Privet iz Baku (arkhivnye dokumenty skvoz' stoletiya)* (Baku: Nərgiz nəşriyyatı, 2014), 137–48, 183, 186–91.

60 As by *Branobel*. See also press and public opinion, e.g. in "Mestnye izvestiya," *Kaspii*, 5 August 1881, 1–2, here 2.

61 "Baku v 1912 godu," *Kaspii*, 1 January 1913, 5.

62 Cf. Wedel, "German Advertisements," 57.

cal progress and the growing public interest in it. In Baku, for instance, fire-protection systems were introduced by the aforementioned entrepreneur Gustav List. In 1863, he invented an extinguisher pump, and in 1893, he founded a trading company in the city, although his warehouses and stocks had already been established in 1880. His advertisements appeared daily on the front pages of local newspapers.⁶³ In a city where fires caused by oil operations were frequent, such technologies became an essential element of urban safety infrastructure.⁶⁴ He also made a substantial contribution to expanding the water supply.⁶⁵

Similarly, local Armenian and Jewish (as well as immigrant) entrepreneurs were active in trade, manufacturing, and the service sector – particularly in the oil industry, where they were mainly engaged in distribution and processing.⁶⁶ Their activities demonstrate the multiethnic character of Baku's entrepreneurial environment and the important role of minority communities in the trade, distribution, and service sectors linked to the oil economy.

Media, Marketing, and Public Discourse

Contemporary newspapers offer valuable insight into how the oil boom in Baku was perceived and debated in public discourse. According to the *Kaspij* newspaper, 1912 was a triumphant year in the history of Baku's oil industry. In its retrospective on 1 January, the paper noted that oil prices – having begun at a modest 22 kopeks – soon rose to 40 kopeks, a development that, it claimed, “even the bravest fantasists had never dreamed of”.⁶⁷ This economic success, however, did not translate into tangible gains for employees and workers in oil plants, who received neither wage increases nor improved social benefits, particularly in healthcare – except at large-scale enterprises such as *Branobel* and similar entities. This contrast illustrates the unequal distribution of the profits generated by the oil boom.

For years, the press had also criticised the high cost of living in Baku. While rising prices were often presented as a sign of urban growth, they were also interpreted as evidence that capital was concentrated primarily in the oil industry and related businesses, whereas essential housing problems affecting large parts of the population remained unresolved,⁶⁸ thereby limiting purchasing power.⁶⁹ The press thus framed

63 Exemplarily *Kaspij*, 3 July 1881, 1, 1 January 1884, 1, 24 June 1888, 1.

64 See e.g. “Khronika,” *Kaspii*, 6 January 1884, 1.

65 A long-term and expensive affair. Cf. Milli Azərbaycan Tarixi Muzeyi, File SMF 73/1: Şollarda və Bakıya çəkiləcək su kəmərinə tikilən tutma qurğularının qiymət cədvəli əlavə edilməklə bağlanan 1 sayılı kontrakt (müqavilə). Alman dilində 12 vərəq. Frankfurt-Mayn şəhərində yerləşən şirkət icra etmişdir, 1910-cu il [Wasserversorgung der Stadt Baku. Kontrakt No. 1. Verzeichnis C der kombinierten Preise für die Herstellung der Fassung in Schollar und der Zuleitung nach Baku. Frankfurt/M. 1910].

66 Cf. Dohrn, *The Kahans*, 88.

67 “Baku v 1912 godu,” *Kaspii*, 1 January 1913, 5.

68 Exemplarily *Kaspii*, 3 October 1896, 2.

69 “Politische Rundschau. Zur inneren Lage,” *Kaukasische Post*, 30 November 1908, 2–3. Cf. *Kaspii*, 23 April 1894, 3.

rising living costs as one of the social consequences of rapid industrialisation. During the 1900s, newspapers repeatedly denounced what they termed “metropolitan prices” – high costs for hotels, restaurants, and transport, such as omnibuses.⁷⁰ By the turn of the century, even specialists in oil companies earning a monthly salary of 100 roubles were reportedly forced to economise on basic necessities and prepare for contingencies such as serious illness.⁷¹ Even relatively well-paid employees earning around 100 roubles per month reportedly struggled to cover basic expenses.

Environmental Challenges and Industrial Transformation

Contemporaries were well aware that the rapid expansion of the oil industry placed significant environmental pressures on the landscapes around Baku. Drilling techniques and other industrial practices disrupted soil and rock formations, contributing to landslides and geological instability. Oil fountains and derricks polluted air and water and spread suffocating odours across wide areas; as observers noted, the atmosphere was saturated with petroleum fumes, and a single spark could trigger devastating explosions that hurled buildings, machinery, and people into the air. These environmental hazards were inherent in the technological processes of oil extraction and refining. Smoking was therefore prohibited, and from the early 1890s onward, lighting systems increasingly relied on electricity.⁷²

During his travels through Central Asia and the Caucasus in 1892, the Russian ethnographer and literary critic E. L. Markov (1835–1903) compared Balakhani – one of the largest oil settlements near Baku – to the Tower of Babel or to the underworld of Pluto (Greek Hades): a landscape of hundreds of smoking chimneys, “pipes of hell”, and omnipresent stench and filth.⁷³ Similar impressions were recorded in the press and in other contemporary accounts.⁷⁴ Such descriptions reveal how observers interpreted the oil landscape as a radically transformed industrial environment. Visitors to the Black City described rows of black-and-grey derricks, blockhouses, and tank wagons arranged “like an artillery park”, all enveloped in clouds of smoke.⁷⁵ Markov remarked that humans, animals, birds, and objects alike were quickly covered in soot, and that only the construction of tall chimneys channelling smoke into higher layers of the atmosphere prevented everything from being “smoked daily like a ham”⁷⁶ – an early attempt to mitigate the most visible effects of industrial pollution. Despite such technological adjustments, however, waters near the docks and coastlines remained

70 See e.g. Markov, *Rossiya v Srednei Azii*, 127.

71 *Kaspij*, 25 April 1894, 2.

72 See e.g. Markov, *Rossiya v Srednei Azii*, 131, 139.

73 Markov, *Rossiya v Srednei Azii*, 131–32. Thereby, their wages were very low, approx. 15 rubles. – Ibid., 139.

74 See e.g. A. M., “Zavodskie otbrosy i Chernyj gorodok,” *Kaspii*, 5 August 1881, 1–2, cf. *ibid.*, 7 August 1881, 2–3. Cf. “Kavkazskaya khronika,” *Kavkaz*, 1 February 1900, 2.

75 Markov, *Rossiya v Srednei Azii*, 142.

76 Ibid., 143.

covered with oily residues, contaminating the sea.⁷⁷ These conditions illustrate the extent to which Baku's industrial landscape extended into its maritime environment.

Waste disposal and the release of toxic substances at high concentrations constituted another major problem, posing not only environmental threats but also acute dangers to workers' lives in the "Black City".⁷⁸ Public debate often attributed these conditions to the incompleteness and ambiguity of Russian industrial legislation.⁷⁹ The press thus served as an important arena for articulating environmental concerns and discussing regulatory solutions.

Newspapers published extensive lists of proposed measures, including the allocation of separate plots in the lowest-lying parts of the "Black City" for waste storage; systematic street cleaning; filling potholes with fresh earth or sand; constructing discharge-pipe networks connecting plants to storage tanks; prohibiting the release of gases from condensers into the air during distillation, instead channelling them into boiler furnaces as practised in foreign factories; and, finally, imposing substantial fines on plant owners.⁸⁰

Safety regulations were another persistent point of contention. Repeated negligence led to fires that claimed human lives, reinforcing public calls for stricter oversight and more systematic industrial inspection.⁸¹

Logistics likewise had a pronounced environmental impact. Improper transportation in unsuitable tanks⁸² and pipeline ruptures – caused by insufficient ground coverage or the corrosive effects of *solonchak* soils – led to frequent leaks along transport routes.⁸³ These incidents demonstrate that environmental risks extended beyond the oil fields themselves to the wider transport infrastructure. In 1911, proposals were even advanced that would require oil companies to contribute to railway maintenance.⁸⁴

At the same time, the regulatory frameworks and preventive measures that had emerged at various levels – from imperial authorities and municipal administrations to industrial actors and the press – remained in flux and required continual adaptation to the rapidly expanding scale and technological complexity of oil production.

77 Cf. Markov, *Rossija v Srednei Azii*, 156.

78 A. M., "Zavodskie otbrosy i Chernyj gorodok," 1–2. Ibid., 7 August 1881, 2–3. Cf. "Kavkazskaya khronika," *Kavkaz*, 1 February 1900, 2. Cf. Markov, *Rossija v Srednej Azii*, 131–33, 160–61. Cf. "Baku, 26 sentyabrya 1881 goda," *Kaspii*, 27 September 1881, 1–2.

79 A. M., "Zavodskie otbrosy i Chernyj gorodok," 1.

80 Ibid., 2–3.

81 For example "Mestnye izvestija," *Kaspi*, 15 July 1881, 1; 26 August 1881, 1; 2 September 1881, 1.

82 "Neftyanoj otdel," *Kaspii*, 14 April 1910, 5.

83 Ibid., 2 April 1910, 6.

84 Ibid., 19 January 1911, 5.

Conclusion

The history of the oil industry in imperial Baku reveals a complex network of transnational connections, interethnic cooperation, and the emergence of local entrepreneurial groups across multiple sectors of production, trade, and urban services. Foreign investors, migrant specialists, imperial officials, and regional business networks interacted to shape an extractive economy that integrated the Caucasian and Caspian regions into global commodity circuits while simultaneously transforming local social hierarchies and urban space.

This article argues that media practices and marketing strategies were not merely ancillary to industrial growth but were central mechanisms through which oil capitalism operated. The press, advertisements, and technical journals circulated technological knowledge, framed environmental hazards and infrastructural deficits as public problems, and mobilised political pressure for regulatory intervention. In doing so, they contributed to the expansion of urban infrastructure – from fire protection and water supply to transport networks and housing – as well as to the proliferation of new companies, professional associations, and public institutions.

More broadly, the case of Baku shows that ecological disruption, infrastructural experimentation, and regulatory improvisation were constitutive elements of capitalist development or economic regimes in imperial borderlands, rather than peripheral side effects. Pollution, fire risk, and logistical bottlenecks became arenas where competing visions of modernity, responsibility, and authority were negotiated among industrialists, municipal administrations, imperial agencies, and urban publics.

From this perspective, the Baku oil frontier both corroborates and refines classic interpretations of nineteenth-century capitalism. Like other imperial resource frontiers identified in recent research, it functioned as an imperial resource area, with rapid integration into global markets underpinned by large capital inflows, migrant expertise, and supporting infrastructure. At the same time, echoing Braudel's emphasis on the material foundations of economic life, pipelines, railways, refineries, and urban utilities formed the durable infrastructural basis on which commercial strategies and financial power operated.

Yet the case of Baku also complicates these models by revealing how environmental disruption – pollution, fire hazards, water scarcity, and geological instability – actively shaped regulatory regimes, municipal politics, and technological innovation. Infrastructural experimentation thus appears not as an external constraint but as a dynamic force in the formation of imperial resource economies.

By placing the environment, expertise, media, and urban governance at the centre of analysis, this article contributes to a growing body of scholarship reconceptualising capitalism as a historically contingent and spatially uneven process in which imperial power, private enterprise, and natural landscapes were continually reconfigured. Comparative perspectives on other extractive regions in the Caucasus and Central Asia promise to illuminate further how distinct ecological regimes produced divergent trajectories of modernisation on the eve of World War I.

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NAFTNA MRZLICA V BAKUJU V ČASU RUSKEGA IMPERIJA: VZAJEMNI VPLIVI INDUSTRIJE, OKOLJA IN URBANIZACIJE

POVZETEK

Članek obravnava hitro širitev naftne industrije v Bakuju in njegovi okolici v poznem obdobju Ruskega imperija ter analizira njen vzajemni vpliv na industrijski razvoj, spremembe v okolju in urbanizacijo. Z združevanjem pristopov iz zgodovine okolja, gospodarstva, urbanizma in medijev raziskuje, kako je naftni razcvet preoblikoval ne le vzorce proizvodnje in naložb, temveč tudi družbeno in ekološko pokrajino Južnega Kavkaza.

Na podlagi tedanjih časopisov, oglasov, strokovnih publikacij in korporativnih virov prispevek zagovarja trditev, da razvoja Bakujskega naftnega območja ni mogoče razumeti zgolj z vidika gospodarske rasti. Širitev dejavnosti pridobivanja, predelave in prevoza nafte je prinesla nove okoljske izzive, vključno z onesnaževanjem, nevarnostjo požarov in obremenitvijo infrastrukture, kar je spodbudilo sprejemanje regulativnih ukrepov, tehnološke inovacije in občinske ukrepe.

Posebna pozornost je namenjena vlogi tiska in strokovnih publikacij. Časopisi in strokovne revije so bili pomembni kanali za širjenje znanja, razpravo o okoljskih tveganjih in izražanje zahtev po izboljšavah infrastrukture. Medijski akterji so tako prispevali k oblikovanju javnih razprav o urbanističnem razvoju, regulaciji industrije in modernizaciji.

V članku je prikazano, da so se industrijska rast, okoljske spremembe in urbanizacija razvijale ob neprestanih medsebojnih vplivih. Namesto obravnavanja ekoloških motenj kot sekundarne posledice industrializacije so kot osrednji dejavnik razvoja Bakujskega naftnega gospodarstva poudarjeni okoljski izzivi. Primer Bakuja tako ponuja širši vpogled v dinamiko mejnikov izkoriščanja virov v Ruskem imperiju in v družbeno-ekološke posledice hitre industrializacije v poznem devetnajstem in zgodnjem dvajsetem stoletju.