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# FORMATION AND DEVELOPMENT OF URBAN INFRASTRUCTURE IN UZBEKISTAN (THE CASE OF UCHQUDUQ CITY)

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**Abstract.** This article examines the theoretical foundations of urban infrastructure and its role in contemporary urban planning. It highlights the urbanization processes in Uzbekistan and the natural-geographical factors influencing urban growth and development. In addition, based on historical sources, the study analyses the history of the establishment of the city of Uchquduq and the formation of social and engineering infrastructure during the early stages of the activities of the Navoi Mining and Metallurgical Combine, with particular attention to the development of water supply and transportation systems.

**Keywords:** urban infrastructure, urbanization, urban planning, Uchquduq, Navoi Mining and Metallurgical Combine, water supply, transport infrastructure, industrial cities, regional development, engineering communications.

Urban infrastructure refers to the systems and services necessary to support cities and their populations. It plays a crucial role in urban development and in ensuring the quality of life of residents. Urban infrastructure includes transportation, energy supply, water provision, sewerage systems, information and communication technologies, and many other components. Together, these elements ensure the efficient functioning of cities.

Urban infrastructure consists of several key components, each of which plays an important role in urban life. The main components are as follows:

•**Transportation system:** roads, public transportation, and pedestrian pathways.
•**Energy supply:** electricity, natural gas, and other energy sources.
•**Water supply system:** drinking water and sewerage networks.
•**Information and communication technologies:** internet and telephone services.[**1**]

In the urban planning process, it is important to apply standards that take into account not only present needs but also future demands, including conditions expected over the next 10–20 years and beyond. Such standards are already widely used around the world, including LEED (Leadership in Energy and Environmental Design) and BREEAM (Building Research Establishment Environmental Assessment Method). Existing international experience provides opportunities to study, implement, and evaluate the effectiveness of these approaches. At present, however, many construction projects continue to rely on technologies and processes that do not meet advanced sustainability standards. For example, specific regulations aimed at preventing pollution at construction sites are often insufficient or absent.

Modern approaches to reconstruction and infrastructure development increasingly emphasize the creation of green spaces and parks. These initiatives are supported by clear assessments of the economic and social benefits provided by landscaping and landscape design practices. In other words, contemporary urban planning is increasingly based on innovative methods and sustainable development principles. Participants in international online forums have presented examples of such planning practices implemented in their respective countries.[**2**]

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From the 1960s to 2008, the urbanization process in Uzbekistan progressed more rapidly than in Kazakhstan, Tajikistan, and Kyrgyzstan. However, in recent years, despite the continued growth of both urban populations and the country's total population, the proportion of people living in urban areas has declined. Between 2010 and 2020, the population of Uzbekistan increased by 20 percent. Rural populations have grown more rapidly than urban populations, while the populations of smaller towns have expanded faster than those of major cities. At the same time, nearly 80 percent of the country's small towns are located within 50 kilometers of a city with a population exceeding 100,000 residents.[**3**]

The first studies aimed at assessing the natural conditions of the territory of Uzbekistan from the perspective of urban planning were conducted by A. Soatov between 1990 and 1993. He identified areas with relatively similar natural characteristics and referred to them as “territory types.” These territory types were significant specifically for urban planning purposes, and only those components that had a strong impact on urban development were taken into consideration. Such components included relief, geological formations, climate, and hydrogeological conditions.[**4**]

According to Sh. S. Zokirov, the natural environment and its individual components directly influence the types of cities, the geographical distribution of settlements and recreational areas, and even people's lifestyles, including their work routines, clothing choices, and dietary habits.[**5**] The scholar’s views found clear practical confirmation in the history of the construction and development of the city of Uchquduq, which is located in one of the most climatically and environmentally challenging regions of northern Uzbekistan.

The history of Uchquduq began in the 1950s when Soviet engineer Alexander Matveyev discovered uranium deposits in the area. According to geological assumptions of that period, uranium ores were believed to occur only in mountainous regions. Therefore, exploration activities were initially concentrated in the Yangiyobod settlement of the Uzbek SSR and in the territory of the Kyrgyz SSR. However, the unexpected discovery in the Kyzylkum Desert completely changed the geo-economic situation of the region.

The construction of the future settlement began in the spring of 1956 with a special team of 80 workers from Department No. 621 in Pyatigorsk. Under the leadership of S. N. Brazhnikov, the first two standard barracks were built in the areas that today correspond to Microdistricts 8 and 13. In August 1956, an additional group of more than 100 workers arrived from the city of Lermontov. These workers later relocated to the city of Navoi in 1962. The first engineering facilities constructed in the settlement were a water supply installation located in Microdistrict 11, along with temporary residential buildings and cultural and public service facilities.[**6**]

These initial efforts later became the foundation for the establishment of the Navoi Mining and Metallurgical Combine (NMMC), which would eventually become the industrial center of the region. The early years of the combine were important not only for the creation of a production base but also for the development of an entirely new social infrastructure in the area. At that time, the Uchquduq region, characterized by extremely harsh natural conditions, lacked the basic requirements for living and industrial activity. Housing, drinking water systems, and transport communications were virtually nonexistent. As a result, providing the newly established settlement with a stable and safe supply of drinking water became one of the most urgent and strategically important tasks of the period.

Between 1955 and 1957, extensive work was carried out to identify and study water resources in the region. As a result, the water sources of Oytim, located 12 kilometers from the Uchquduq settlement, Beshbuloq, situated 22–25 kilometers away, and Mingbuloq, located 70 kilometers away, were discovered and subjected to geological exploration. During the initial stage, industrial enterprises and residential areas were supplied with water through a temporary pipeline connected to the Oytim

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source and through artesian wells. Water was also transported by motor vehicles. However, the daily water supply did not exceed 90 cubic meters, and the water required special treatment before consumption. Therefore, the available resources were completely insufficient to meet the needs of the area. To address this critical problem, construction of a new technical water supply complex based on the Beshbuloq source began in 1958. As part of the project, a 21-kilometer water pipeline was constructed.[7]

In addition to supplying water, the provision of industrial equipment and construction materials to Uchquduq depended directly on the development of the transport system. For this reason, during the early years of the combine's operations, the 290-kilometer Navoi–Uchquduq railway became the region's main transportation artery. Thanks to the dedication and perseverance of the builders who completed this large-scale project, the first freight train arrived in Uchquduq from Navoi on September 6, 1960.

However, during the initial stage of development, the region faced not only anticipated difficulties such as water shortages, the lack of roads in desert conditions, and extremely hot weather, but also unexpected natural disasters. Abnormally cold winters, heavy rainfall, and destructive floods seriously affected both the construction of water facilities and railway operations. One of the most severe natural disasters occurred on the night of May 1, 1961, at a crucial stage when the commissioning of the Beshbuloq water pipeline was expected. On that day, continuous torrential rainfall caused precipitation equivalent to approximately 30–40 percent of the annual average to fall within a single day. Despite these difficulties and the damage caused by the disaster, all obstacles were successfully overcome. In the same month, in May 1961, the Beshbuloq water pipeline was officially commissioned, marking a major turning point in meeting the technical water demands of the Uchquduq industrial zone.[7]

**Conclusion.** Urban infrastructure is a strategic factor that determines both the quality of life of the population and the prospects for sustainable regional development. The case of Uchquduq demonstrates that the formation of such infrastructure took place under exceptionally difficult natural-geographical and climatic conditions. The process of urbanization and urban development was closely linked to the exploitation of strategic uranium deposits and the expansion of the production capacities of the Navoi Mining and Metallurgical Combine (NMMC).

During the initial stage of regional development, the absence of reliable water supply systems, transport communications, and engineering networks created serious socio-economic challenges. Nevertheless, within a relatively short period, the identification of local water sources such as Oytim, Beshbuloq, and Mingbuloq, together with the construction of a technically advanced water supply system, ensured not only industrial production but also the functioning of the urban settlement itself. At the same time, the construction of the Navoi-Uchquduq railway across desert terrain integrated the region into the national transport and logistics network. This infrastructure project became a decisive foundation for the substantial growth of the region's industrial and economic potential.

**Reference:**

1. https://goxost.net/post/shahar-infratuzilmasi-va-uning-ahamiyati-mpuhqr
2. https://www.undp.org/uz/uzbekistan/press-releases/odamlar-uchun-qurilgan-sha harlar
3. O‘zbekiston shaharlari qanday o‘smoqda va ular to‘g‘ri o‘syaptimi?/ https://www.gazeta.uz/oz/2022/07/10/urbanization/
4. Shodiyev S., Axmedova Yu., Norquvatova U. Shaharlar atrofi landshaftlarining ekologik holatini navoiy shahri misolida tahlil qilish. "Экономика и социум" №3(94) 2022 /

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file:///C:/Users/ASUS/Downloads/ SHAHARLAR ATROFI LAND SHAFTLARINI NGEKOLOGIKHOLATININAVOIYSHAHRI MISOLIDA TAH LILQILISH.pdf

5. Amonova Aziza. Tabiiy landshaftlarning urbolandshaftlar bilan o'rin almashish oqibatlari (O'zbekiston misolida) bitiruv malakaviy ishi/ https://api.ziyonet.uz/uploads/books/473012/5b0510a7c52a3.pdf?4O22x8pS9t0SGHrY9Cwkj
6. Kucherskiy N.I., Astvatsaturyan G. G., Berdnikov E.A., Malgin O. N., Maslov Yu., Orexov AN Navoiy kon-metallurgiya kombinati. Yaratilish va tarixi. — Toshkent: IPAK „Sharq", 2002. — B. 320-321. — 480 s.
7. Кучерский Н. И.. Золото Кызылкумов.Тошкент,1998, Стр.36-38, 40.