WATER PROBLEMS AND PROSPECTS OF SOLUTIONS OF INDUSTRIAL ENTERPRISES IN SURKHANDARYA REGION

Gadaev Abror Niyazovich.
PhD, Professor of the Samarkand State architectural and civil engineering institute, Republic of Uzbekistan
e-mail address: abror_g@yahoo.com
Phone number: + 998937245927.
Abilov Elyor Ermamatovich,
Doctoral student of the Samarkand State architectural and civil engineering institute, Republic of Uzbekistan
e-mail address: elyor.abilov.90@mail.ru
Phone number: + 99899 674 0593.

Annotation.

This article focuses on the industrial enterprises and their water problems based on the geographical and climatic conditions of Surkhandarya region. It also provides a brief analysis of the region's available water resources and the need for water in industrial enterprises. The article concludes with recommendations for the development of industrial enterprises in the region and the efficient use of available water resources.

Keywords.

Surkhandarya region, industrial water supply, water-saving technologies, hot and dry climatic conditions, groundwater, rivers,reservoirs.

Surkhandarya region has a relatively dry and hot climate in the south of the Republic of Uzbekistan. For many years, the province was mainly engaged in agriculture. Due to the development of the agro-cluster sector, the number of industrial enterprises and the sharp increase in their types require a unique approach to the use of water in industrial enterprises in the region. The pandemic caused by COVID-19 today has shown, how vulnerable humanity is to nature and the abundance of unexplored science. Due to the active involvement of mankind in nature, the temperature is rising as a result of climate change. According to Michel Jaro, head of the World Metrology Organization, if the average normal temperature on the planet rises to 7 degrees, half of the Earth's surface will become uninhabitable. That is why limiting the amount of "greenhouse gases" released into the atmosphere, the efficient use of natural resources is becoming a requirement of the times. The introduction of water-saving technologies in industrial enterprises, as well as all resources, is a priority.

Research and methods: Surkhandarya region is located in the most southern part of Uzbekistan, its territory corresponds to the arid subtropical climate zone. The region is crossed by 37 ° 10 '- 39 ° 02' north latitude and 66 ° 32'- 68 ° 25 'east longitude lines. [1].

Fig 1. Location of Surkhandarya region on the map of the Republic of Uzbekistan[2].

High mountains located on the western and north-western borders of Surkhandarya and they are one of the factors creating special climatic conditions in the region. The openness of the southern border is a "gateway" for northern, northwestern air flows into the region. The climate of the region is subcontinental, winters are warm, summers are hot and dry. In summer, the daytime temperature reaches 46-48 degrees[6]. The leading industries of the region are: cotton ginning, cotton processing enterprises. Large industrial enterprises: Surkhanconcrete corparation, Sherabad Cement Plant, Jarqurganoil, Sherabad ceramics, Denau oil extraction, Sariosiyo stone sorting plants, Shurchi flour factory, Jarqurgon and Termez garment factories, Shargun coal, Khojaikon salt, Khandiza polymetallic ore deposits and others.

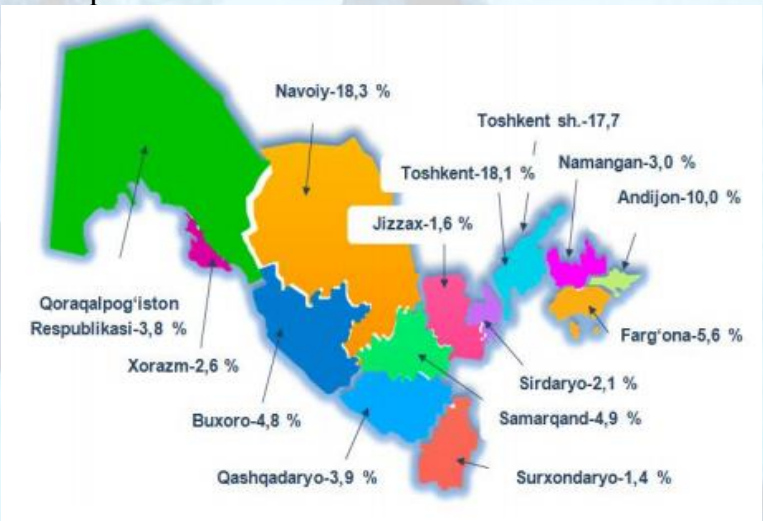

Fig 2. The portion of the Republic of Uzbekistan in the production of industrial products among the regions.

Although the share of the region in the production of industrial products in the country is small (1.6%), in recent years it has shown high rates of industrialization. Industrial production in 2020 was in Namangan (117.0% compared to January-November 2019), Surkhandarya (111.4%), Navoi (108.8%) and Khorezm (104.3%) regions, as well as in the Republic of Karakalpakstan (103.3%)[7]. Water supply to the growing number of industrial enterprises must be economically, ecologically and engineering-efficient. The main sources of water used for industrial purposes: groundwater, surface water and atmospheric waters. Surface water is mainly sea, lake, open canals and river water. They contain more organic pollutants. Groundwater are more mineralized. The two main water esters of Surkhandarya region are Surkhandarya and Sherabaddarya and their tributaries Karatagdarya, Topalandarya, Sangardakdarya, Khojaipok. The existing reservoirs in the region, mainly the Uchqizil, South Surkhandarya and Degrez reservoirs, are used to irrigate the agricultural

lands. The chemical, biological and bacteriological composition of surface water changes rapidly under the influence of natural and anthropogenic factors. For example, the mineralization of Sherabaddarya increased from 238 mg / l to 465 mg / l as the flow decreased. This condition is also seasonal and may be exacerbated by precipitation and sudden warming[8]. The composition of groundwater is mineralized according to the geographical location of Surkhandarya region. Due to the dry and hot climate of the region, the amount of dissolved salts in groundwater is higher. When studying the water content of wells located in the lowlands of the Middle Surkhandarya natural geographical area, it was found that the dissolved salts in the water are 1.08 g / l [6]. The reliability of sources should be high in the uninterrupted supply of quality water to industrial enterprises. This figure also varies depending on the geographical location and the needs of the enterprise. The Khandiza polymetallic ore deposit in the northern part of the region draws its water from the upper reaches of the Topalandarya River, while the Sherabad Cement Plant, which is part of the Almalik Mining Combinat, meets its water needs through groundwater.

Results and recommendations: Depending on the mineralization of the water and other factors, the cost of preparing it for consumption increases. Surkhandarya region is rapidly becoming an industrial zone. Businesses' needs for water also vary depending on the products they produce and the technologies they use[9]. Given that the Surkhandarya region is mainly rich in minerals, we can say that further developments will be mainly due to mining. A clear example of this is the capital reconstruction and expansion of the Shargun and Toda coal deposits. With this in mind, the following can be recommended for the rational use of water resources in the emerging industrial enterprises in the region:

- introduction of water-saving technologies, reconstruction of old ones and adaptation to the modern requirements;
- development of the water reusing technologies of available water without waste;
- prevention of the addition of harmful effluents from the enterprise to groundwater;
- seasonal switching of water cooling devices;
- Improving the skills of staff responsible for water using and water protection;

Ensuring the development of industrial enterprises in the economic and social development of Surkhandarya region without harming the ecology, environment and water resources is one of the most important areas today. In this regard, the National Center for Sustainable Water Resources Management "UZWATER" at the Samarkand State Architectural and civil engineering institute is conducting research in the field of climate and water resources protection.

References:

1. National Encyclopedia of Uzbekistan, 2001. Page 124.
2. Author: TUBS - personal work. This vector image contains elements, taken from the drug image: Uzbekistan location map.svg (from NordNordWest)., CC BY-SA3.0, https://commons.wikimedia.org/w/index.php?curid=16496925.
3. Michael R. Edelstein, Astrid Cerny, Abror Gadaev. Disaster by Design: The Aral Sea and its Lessons for Sustainability. 2012 ISBN: 978-1-78190-375-9 UK, North America (USA and Canada), Japan, India, Malaysia, China
4. Abror N. Gadaev, Daniyar K. Jumamuratov “Urgent Central Asian water challenge: Sustainable Water Resources Management” https://karsu.uz/kk/journal-2020-2/
5. Gadaev A.N., Jo'raev A.H. “Development of the procedure for recovery of well flow rate using organophosphorus complexes” Journal “Problems of Architecture and Construction” in issue №4, 2019.
6. Payoz Musayev, Jahongir Musayev "Economic and social geography of Uzbekistan" "Sharq" publishing house Tashkent-2019. Page 33

7. State Statistics Committee of the Republic of Uzbekistan. Industrial production of the Republic of Uzbekistan. January-November 2020. Tashkent - 2020. Page 23
8. B.E. Adenbayev, Z. Sirlibayeva, Z.F. Xakimova, M.M. Mirxoliqova. Hydrochemistry. Textbook. Philosophers Publishing House. Tashkent - 2014. Page 49.
9. Nikanorov A.M. Hydrochemistry / Uchebnoeposobie. - L .: Gidrometeoizdat, 1989. Page 347.
10. V.B. Gusakovsky, E.E. Vuglinskaya. Industrial water supply. Tutorial. Saint Petersburg-2016.Page 17.