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RESEARCH, INNOVATION, RESULTS



**TOSHKENT DAVLAT  
TRANSPORT UNIVERSITETI**

Tashkent state  
transport university



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# TASHKENT STATE TRANSPORT UNIVERSITY

## JOURNAL OF TRANSPORT

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Articles are published in Uzbek, Russian, and English, ensuring a wide-reaching audience and fostering cross-cultural academic exchange. As a beacon of academic excellence, the "Journal of Transport" continues to serve as a vital conduit for knowledge dissemination, collaboration, and innovation in the transport sector and related fields.

## Improvement of biological purification technology

G. Rikhsikhodjaeva<sup>1</sup><sup>a</sup>, N. Khudayberganova<sup>1</sup><sup>b</sup>, Sh. Esanmurodov<sup>1</sup><sup>c</sup>,  
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Abstract:

This article discusses the current state of the “Dasht” wastewater treatment plant in Karshi, the need for its reconstruction and improvement of biological treatment technologies. As a result of the increase in the population, the construction of new residential areas, industrial enterprises and social facilities, the volume of wastewater is increasing, which is exceeding the maximum capacity of the treatment facilities. Therefore, the issue of introducing biological treatment methods, environmentally safe disinfection of wastewater using high-water grasses (pistia, eichhornia, chlorella) and microorganisms is becoming increasingly important. The possibility of reusing wastewater through deep biological treatment - in industrial cooling systems, for agricultural irrigation - is analyzed. At the same time, the economic efficiency of using purified water in rice cultivation is taken into account. The article substantiates the principle of operation of biological water bodies, their advantages, their contribution to saving water resources and their role in preventing environmental pollution. The article discusses the issues of reconstruction of the aerator of the wastewater treatment plant of the Dasht station in the city of Karshi, improvement of the technology of biological treatment of wastewater and their reuse. The need to develop scientifically based measures to reconstruct the facility and increase its reliability was noted. The objectives, technology and advantages of biological treatment of wastewater, the prospects for cooling equipment at industrial enterprises, and the reuse of purified water for agricultural needs, which will significantly save clean drinking water and technical water, improve the environment, are presented in the article.

Keywords:

Wastewater, biological treatment, water reuse, circulating water system, biological ponds, high-water grasses, industrial wastewater, environmental safety, reconstruction, aeration system

## Biologik tozalash texnologiyasini takomillashtirish

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Annotatsiya:

Mazkur maqolada Qarshi shahridagi “Dasht” oqova suvlarini tozalash inshootining hozirgi holati, uni rekonstruksiya qilish va biologik tozalash texnologiyalarini takomillashtirish zarurati yoritilgan. Aholi sonining ortishi, yangi turar-joylar, sanoat korxonalarini va ijtimoiy obyektlar qurilishi oqibatida oqova suvlar hajmining ortib borayotgani natijasida tozalash inshootlari maksimal quvvatidan oshib ketmoqda. Shu sababli biologik tozalash usullarini joriy qilish, yuqori suvli o‘tlar (pistiya, eyxorniya, xlorella) va mikroorganizmlar yordamida oqova suvlarni ekologik xavfsiz tarzda zararsizlantirish masalasi dolzarb ahamiyat kasb etmoqda. Oqova suvlarni chuqur biologik tozalash orqali ularni qayta foydalanish – sanoat sovetlash tizimlarida, qishloq xo‘jaligi sug‘orishida ishlatish imkoniyati tahlil qilinadi. Shu bilan birga, tozalangan suvning sholi yetishtirishda qo‘llanishi bo‘yicha iqtisodiy samaradorlik hisobga olingan. Maqolada biologik suv havzalari ishlash prinsipi, ularning afzalliklari, suv resurslarini tejashga qo‘shgan hissasi va atrof-muhit ifloslanishining oldini olishdagi roli asoslab berilgan. Maqolada Qarshi shahridagi “Dasht” stansiyasi oqova suvlarini tozalash inshootining aeratorini rekonstruksiya qilish, oqova suvlarni biologik tozalash texnologiyasini takomillashtirish va ulardan qayta foydalanish masalalari muhokama qilinadi. Ob'ektni rekonstruksiya qilish va uning ishonchligini oshirish bo'yicha ilmiy asoslangan tadbirlarni ishlab chiqish zarurligi qayd etildi. Oqova suvlarni biologik tozalashning maqsadlari, texnologiyasi va afzalliklari, toza ichimlik suvi va texnik suvni sezilarli darajada tejashga, atrof-muhitni yaxshilashga olib keladigan sanoat korxonalarida uskunalarni sovetlash, qishloq xo‘jaligi ehtiyojlari uchun tozalangan suvdan qayta foydalanish istiqbollari. maqolada keltirilgan.

Kalit so‘zlar:

Oqova suvlar, biologik tozalash, suvdan qayta foydalanish, aylanma suv tizimi, biologik suv havzalari, yuqori suvli o‘tlar, sanoat suv chiqindilari, ekologik xavfsizlik, rekonstruksiya, aeratsiya tizimi

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va atmosfera havosi o'rtasidagi almashinuv oksidlanishning tezlashishiga yordam beradi.

60C havo haroratida biologik hovuzdagi suvni tozalash normal davom etadi. Biologik hovuzlar yozning issiq kunlarida, yuqori haroratlarda suvni yaxshi tozalaydi. Bugungi kunda butun dunyoda oqova suvlar biologik usulda tozalanadi. Chunki oxirgi paytlarda suvning tarkibi ancha o'zgaradi.

Biologik suv tozalash hovuzlari o'zlarining kamchiliklariga ega. Bunday hovuzlarda suvni tozalash vaqti iqlimga bog'liq. U 2-3 kundan 2,5-3 oygacha davom etishi mumkin. Butun dunyoda, jumladan, O'zbekistonda ham tabiatning hayot uchun zarur bo'lgan ne'matlaridan biri – suvga bo'lgan ehtiyoj yildan-yilga ortib bormoqda. Shu bois suvdan tejamkorlik bilan foydalanish, uning ifloslanishining oldini olish, sanoat, qishloq xo'jaligi, davlat sektorida foydalaniladigan suvni izchil tozalash dolzarb ahamiyatga ega.[1, 6, 7]

Sanoat korxonalaridan kelayotgan oqova suvlar tabiat va atrof-muhitni ifloslantiradi. Ular turli xil zaharli moddalarni o'z ichiga oladi, masalan, neft, neft mahsulotlari, gaz kondensatlari, fenol, tsiyanid, pestitsid, etilen glikol, dietilen glikol, nitrat ionlari va boshqalar kabi o'ta zaharli moddalar. Aksariyat hollarda ular faqat mikroorganizmlar ta'sirida parchalanishga moyil. Ushbu muammoni hal qilish sanoat korxonalarini va kommunal xizmatlardan keladigan oqova suvlar tarkibidan eng faol mikroorganizmlarni ajratish va ularni xalq xo'jaligida qo'llashni o'z ichiga oladi.

So'nggi paytlarda tarkibida ko'plab organik moddalar bo'lgan oqova suvlar biologik tozalani b kelinmoqda. Ayniqsa, kichik shaharlarda bunday maxsus biologik hovuzlardan foydalanish tozalash inshootlarini qurishga sarflangan kapital qo'yilmalarni sezilarli darajada tejash imkonini beradi. Oqova suvlari to'planadigan maxsus hovuzlarda pistiya, eyxorniya, azolla, xlorella kabi baland suv o'tlarini yetishtirish, shuningdek, har xil turlarga mansub mikroorganizmlarni ko'paytirish va o'stirish orqali organik ifloslanishning oldini olish mumkin.

Sholi yetishtirishda biologik tozalangan oqova suvlardan foydalaniladi va har gektardan 50 tsentnerdan hosil olinadi. Vegetatsiya davrida har bir gektar ekin maydoni uchun o'rtacha 25 ming m<sup>3</sup> suv talab qilinishini hisobga olsak, bu usulning samaradorligi ko'p million so'mni tashkil etadi. Bundan tashqari, atrof-muhit ifloslanishining oldi olinadi.

### 3. Xulosa

Maqolada Qarshi shahridagi "Dasht" stansiyasi oqova suvlarini tozalash inshootining aeratorini rekonstruksiya qilish, oqova suvlarni biologik tozalash texnologiyasini takomillashtirish va ulardan qayta foydalanish masalalari muhokama qilinadi. Ob'ektni rekonstruksiya qilish va uning ishonchililigini oshirish bo'yicha ilmiy asoslangan tadbirlarni ishlab chiqish zarurligi qayd etildi. Oqova suvlarni biologik tozalashning maqsadlari, texnologiyasi va afzalliklari, toza ichimlik suvi va texnik suvni sezilarli darajada tejashga, atrof-muhitni yaxshilashga olib keladigan sanoat korxonalarida uskunalarni sovutish, qishloq xo'jaligi ehtiyojlari uchun tozalangan suvdan qayta foydalanish istiqbollari. maqolada keltirilgan.

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