This research project is aligned with Sustainable Development Goal 6 — **Clean Water and Sanitation (SDG 6)** — which aims to ensure access to safe water for all, promote sustainable management of water resources, and improve sanitation conditions. Currently, water pollution, drinking water scarcity, and ecosystem degradation are among the most pressing global challenges.

The studies focus on improving water quality, wastewater treatment, purification of water contaminated by industrial and petroleum products using biological and physico-chemical methods, and reducing the spread of harmful substances in the environment. In particular, the research addresses the enhancement of wastewater treatment technologies, the use of sorbents and biomaterials, restoration of aquatic ecosystems, and issues of transboundary water security.

The research findings provide practical recommendations for sustainable water resource management, prevention of water pollution, and increasing public access to safe drinking water. In addition, these works contribute to reducing the environmental impact of industrial waste, maintaining ecological balance, and ensuring water security under climate change conditions.

Thus, the research makes a significant contribution to protecting public health, strengthening environmental sustainability, and achieving global sustainable development goals through the development of scientific and technological solutions in the field of clean water and sanitation.

1)

Title	Efficient immobilization of Sr(II) ions in ceramic matrices using thermal transformation of Ti–Ca–Mg phosphate adsorbents
Authors	Shashkova, I.| Kitikova, N.| Sycheva, O.| Dzikaya, A.| Nurbekova, M.| Hosseini-Bandegharaei, A.| Ivanets, A.
Year	2024
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85189664941&origin=resultslist
DOI	10.1016/j.ceramint.2024.04.007

2)

Title	Integrated Production of Granular Activated Carbon from Rice and Oil Waste
Authors	Diyarova, B.| Appazov, N.| Bazarbayev, B.| Dzhiembaev, B.| Lygina, O.| Niyazova, D.| Espanova, I.
Year	2025
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DOI	10.48309/ajca.2025.486309.1734

3)

Title	Efficacy of Chlorella Sp. In Diesel Fuel Degradation in a Model Experimental Study
Authors	Bukharbayeva, Z.| Yernazarova, G.| Zayadan, B.| Turasheva, S.| Yeraliyeva, Z.| Shynybekova, S.| Mukasheva, D.| Ramazanova, A.| Keubassova, G.
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DOI	10.47278/journal.ijab/2024.147

4)

Title	Ecophysiological indicators of growing some woody plants under irrigated conditions
Authors	Umiralievna, B.G.| Aitzhamal, M.| Maralovich, K.A.| Altynbekovna, S.A.| Nurgaiypovna, K.A.| Kyrbassova, E.| Otanovna, Z.K.| Berdibekqyzy, A.G.
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DOI	10.22124/cjes.2024.7768

5)

Title	Eucalyptus wood waste biochar: a green solution for fluoranthene contamination in wastewater
Authors	Ren, Y.S.| Tynybekov, B.| Nurmahanova, A.| Ibragimov, T.| Kurmanbay, U.| Nazarbekova, S.| Kuatbayev, A.| Sartayeva, A.| Ilyas, M.| Machado da Silva Acioly, T.
Year	2025
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-105002585223&origin=resultslist
DOI	10.1080/09603123.2025.2483976

6)

Title	Environmental Consequences of Virgin and Fallow Lands Development in Kazakhstan
Authors	Mazhitova, Z.| Shamshidenova, F.| Isakhan, G.| Kurmangali, G.| Azmukhanova, A.| Zhalmurzina, A.| Bibizhamal, O.
Year	2023
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85149917867&origin=resultslist
DOI	10.1007/978-3-031-21219-2_261

7)

Title	Biochemical analysis of the Caspian Sea sediments: Implications for environmental pollution and bioremediation
Authors	Mamataeva, A.| Kuatbayev, A.| Gartsiyanov, K.| Abdurashidovich, U.A.| Flora, A.| Ravshanbekovna, M.G.| Toshmamatovich, T.U.| Khakimboy Ugli, B.O.| Sapaev, I.B.| Mamasoatov, D.| Bakhtiyarovna, B.Z.| Mamatqurbonovich, E.N.| Kholmirzaev, M.
Year	2024
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85215995593&origin=resultslist
DOI	10.22124/cjes.2024.8217

8)

Title	Development of technology for biological treatment of wastewater contaminated with oil and oil products using aquatic plants and algae
Authors	Bukharbayeva, Z.| Zayadan, B.| Yernazarova, G.| Anuarova, L.| Aimukhanov, N.| Maimatayeva, A.
Year	2024
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DOI	10.26789/AEB.2024.01.006

9)

Title	Numerical simulation and GPU computing for the 2D wave equation with variable coefficient
Authors	Altybay, A.| Darkenbayev, D.| Mekebayev, N.
Year	2023
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DOI	10.1504/IJSPM.2023.138584

10)

Title	Climate-Induced Transboundary Water Insecurity in Central Asia: Institutional Challenges, Adaptation Responses, and Future Research Directions
Authors	Issakov, Y.| Sarkytkan, K.| Gajić, T.| Akhmetova, A.| Berdygulova, G.| Zhoya, K.| Razia, T.| Matigulla, B.
Year	2025
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-105009092515&origin=resultslist
DOI	10.3390/w17121795

11)

Title	Production of Granular Porous Carbon Sorbent by Thermolysis of Agricultural and Technogenic Waste Co-
Authors	Appazov, N.| Diyarova, B.| Tolegenkyzy, M.| Syzdykbayev, M.| Toibazarova, A.| Niyazova, D.| Yespanova, I.| Kanzhar, S.| Alimkhan, B.| Bekkhozhayev, M.| Serikbayev, M.| Turmanov, R.| Zhapparbergenov, R.| Narmanova, R.| Akhatayev, N.| Balykbayeva, G.| Yespenbetova, S.| Nazarov, E.| Askarova, G.| Akylbekov, N.
Year	2026
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-105015364718&origin=resultslist
DOI	10.48309/ajca.2026.535441.1886