

# HISTORY OF THE DEPARTMENT



## Head of the department "Hydrotechnical facilities and engineering constructions"

Doctor of Technical Sciences, Professor

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The department of "Hydrotechnical structures and engineering constructions" was founded in 1930 in the Engineering Melioration faculty of University of Turkistan (based on the current National University of Uzbekistan named after Mirzo Ulugbek). In 1934, it was divided into the Departments of "Hydrotechnical Structures" and "Engineering Constructions, Bases and Foundations". In 2004, two departments were reunited, and the "Hydrotechnical Structures and Engineering Constructions" Department was established.

The "Hydrotechnical Structures" department was headed by E.A.Zamarin (1930-1932), N.A.Fandeev (1932-1941), V.V.Poslavskiy (1941-1949), A.O.Ostrovskiy (1949-1963), Z.X.Xusanxodjaev (1963-1973), E.I.Pavlova (1981-1985) and M.R.Bakiev (1985-2004).

The "Engineering Constructions" department was headed by A.N.Askochinskiy (1934-1950), K.I.Bochkov (1950-1963), E.S.Pesikov (1964-1971, 1986-1992), K.I.Talabaev (1971-1975), X.A.Asqarov (1975-1986), A.A.Kurbonov (1992-1999), and A.G.Mirzaev (1999-2004).

After the two departments were combined in 2004, Prof. M.R. Bakiev (2004-2014) and Associate Prof. N.R. Rahmatov (2014-2017) managed the "Hydrotechnical Structures and Engineering Structures" department. Since 2017, Prof. M.R. Bakiev has served as the department's leader.

At the department, some scientific research was conducted by scientists: academicians V.V. Poslavskiy, A.N. Askochinskiy, and A.M. Mutsamedov; professors N.G. Malchikovskiy, Ye.A. Zamarin, N.A. Fandeev, V.D. Jurin, V.D. Bulaevskiy, A.O. Ostrovskiy, and M.S. Vizgo; associate professors Z.Khusankhodzhaev, Ye.I. Pavlova, G.A. Soy, N.I.Sviridov, B.P.Surovsev, Z.I. Ryadova, and L.I. Antonova. They considered scientific solutions to the improvement of projects of hydrotechnical structures, the regulation of flows, the regulation of filtration flow, the design of constructions of earth-dams and other problems in the field. Scientists of the department made a significant contribution to the history of the development of hydraulic engineering.

Nowadays, professors M.R.Bakiev and A.A.Yangiev, associate professors N.R.Rakhmatov, M.A.Kadirova, O.Kadirov, N.Maalem, D.Adjimuratov, K.Yakubov, O.Khalimbetov and O.Vafoeva, senior teacher T.J.Muslimov, assistants Sh.Djabbarova, Kh.Khasanov, Sh.Panjiyev and Sh.Kurbanov are working at the department. In the laboratory, the head of the laboratory O. Matkarimov and Iobarant F. Dzhumayeva are

working. In addition, postdoctoral student O'. Kahorov and PhD student A. Jakhanov are conducting scientific research.

### **Methodical and scientific achievements of the department**

The department includes three laboratory boxes: one devoted to the Topolong Reservoir model, one for "Hydrotechnical structures" (area 180 m<sup>2</sup>), one for "Soil mechanics and construction materials" (area 140 m<sup>2</sup>), and one for "Inter-departmental laboratory" (size 240 m<sup>2</sup>). They are fully set up with trays, equipment, and other items required for conducting scientific research and laboratory tasks. These laboratories are being completely reconstructed to satisfy modern standards.

In 2003-2005 it conducted scientific research for an international grant (cost 30,000\$) on the theme "Studying the reliability of operated hydrotechnical installations and working out the measures of increasing safety of them". It worked out the measures for developing the reliability of reservoirs in Sultonsanjar, Tuyamuyin, Chortok, Chimkurgon and irrigation installation Sugam system. In 2009-2011 was achieved an international grant (cost 17.000 USD) under the leadership of professor M.R.Bakiev which was used in the farm industry in Xorezm, Kashkadarya, Buxara regions and the Republic of Karakalpakstan. According to the economic agreement (2011, 35mln sums), it was done scientific research.

Furthermore, the following technological and scientific works have been done:

- Ø "Improvement of hydrotechnical constructions, development of indicators of safety and security, methods of calculation and design" (KXA-7-038-2015, under the State Budget);
- Ø "Development of safety criteria for river water intakes" (1st level, 2015, 25 million sums, No. 2.8, according to the State Budget);
- Ø "Improvement of the design of hydraulic structures, development of reliability and safety indicators, methods of calculation and design" (6th level, 2015, 12 million sums, according to the State Budget);
- Ø "Development of recommendations for the protection of the right and left banks of the Amudarya River flowing through the territory of Turtkul, Ellikkala, and Beruni districts of the Republic of Karakalpakstan and Khanka, Bagat and Urgench districts of Khorezm region" (2015, 30 million sums, according to the contract);
- Ø "Development of measures to identify and eliminate deficiencies in irrigation networks, water intakes, pumps, and hydraulic structures that supply water to the irrigation areas of the Training and Research Center" (according to the State Budget);
- Ø "Inspection of the technical condition of the Dustlik PK 145 canal on the UGK canal" (2015, 25 million sums, under the contract), No. 2.8,
- Ø "Improvement of the design of hydraulic structures, development of reliability and safety indicators, methods of calculation and design" (2016, 12 million sums, according to the State Budget); KXA-7-038-2015.
- Ø "Development of safety criteria for river water intakes" (2nd level, 2016, 25 million sums, according to the State Budget);
- Ø Kuyi-Amudaryo ISBD. Development of recommendations to ensure the reliable and safe operation of the Mejdureche Reservoir in Muynok district of the Republic of Karakalpakstan (2016, 40 million sums, according to the contract), No 8/2016
- Ø "Inspection of the technical condition of the Kegeili canals, North Tashkent and the Karmaninsky hydroelectric complex" (2016, 35 million sums, according to the contract), 16/2017

Ø "Development of a master plan for the bilateral adjustment of the Uzan in the Tuyamuyin-Kipchak area of the Amudarya" (38 million sums, according to the contract), 1/2017,

- "Inspection of the technical condition of the Mangit-arna and Kuanysh-arna canals in the Republic of Karakalpakstan" (under the contract)

In recent years, the department has carried out the following scientific research based on a contract:

Ø Surveys of the technical condition, development of recommendations on the reliability and safety of operation of the Takhiyatash hydroelectric complex (contract 65/2022, budget: 90 million sums)

Ø Development of safety criteria for Takhiatosh hydroelectric complex (contract 21/2023, budget: 95 million sums)

- Improvement of drip irrigation technology (water softener facility) in the valley supplied with water through the Zarafshon river (contract 14-06-2022, budget 59 million sum)

Scientific works produced by the department have been successfully published in both domestic and international scientific journals. Over the last five years, the department's team has published more than 200 research papers in international journals and conferences included in the Scopus and WoS databases.

Professor M.R.Bakiev, docent E.I. Kirillova, and assistant teacher J.M.Choriev won the "Central Asian Fair of Ideas - 2009" competition in 2009 and got a World Bank grant (budget: \$17,000 \$). Researcher Shavkat Rakhmatullaev prepared his PhD thesis under the supervision of Philippe L. Kostyumer (France) and Prof. Bakiev M.R (Uzbekistan) based on a partnership between the Bordeaux-1 University of France and TIQXMMI, and he has diplomas of candidates of science from two countries (Uzbekistan, France). R.Xrupin, a master's degree student, obtained the win in the Republican award "Kelajak ovozi" in 2012.

In addition, over the last five years, more than 30 textbooks and study guides, more than 100 methodological works, 15 recommendations, and 300 research papers have been published and received more than 10 patents for scientific innovations. Prof. M.R. Bakiev prepared 11 candidates for sciences, 6 PhDs, and 2 Doctors of Sciences.

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