

OPINION

by Prof. Dr. Eng. Petar Kolev Kalinkov

member of the scientific jury in a competition for occupying the academic position "professor" in the professional field 5.7. Architecture, construction and geodesy, scientific specialty "Engineering hydrology, hydraulics and water management" (Quantitative assessment of water resources and runoff regime in drought conditions and climatic variations) in the section "Surface and groundwater" of the Department of Hydrology

In the competition for occupying the academic "professor", the sole candidate is Assoc. Prof. Dr. Elena Kirilova Bozhilova, Associate Professor Deputy General Director "International Activities and Projects" at NIMH.

This opinion has been prepared on the basis of the order of Acting Director General of NIMH No. НД-04-3 from 29.01.2024 and the decision of the scientific jury taken at the meeting on 09.02.2024. It is in accordance with the requirements of the Law for the development of the academic staff in the Republic of Bulgaria (ZRASRB), the Regulations for its implementation (PPZRASRB) and the Regulations of NIMH under ZRASRB. The review consists of two parts and a conclusion.

From the inspection of the materials submitted in the competition for a professor with a single candidate Assoc. Prof. Dr. Elena Kirilova Bozhilova, no violations were found in the procedure and the eligibility of the candidate to the competition

I. Requirements for the candidate

under Art. 29 (1) and Art. 29b of ADSRB, Art. 60 of PPDSARB and Art. 56 (1), (2) and Art. 57 (1) of the Regulations of the National Institute of Hydrology and Hydroelectric Power Engineering under the Law on the Republic of Bulgaria

Assoc. Prof. Dr. Elena Kirilova Bozhilova, since 03.01.2012 and currently Deputy General Director "International Activities and Projects" at the National Institute of Hydrology and Hydroelectric Power Engineering, participated as the only candidate in the competition for a professorship.

Associate Professor Bozhilova graduated from the Higher Institute of Architecture and Construction (VIAS) - Sofia with a qualification in civil engineering, specialty in Hydro-Amelioration Construction in 1990. She started working at the National Institute of Hydrology immediately after completing her higher education, and to date has over 35 years of work experience. Her professional experience is mainly research work in the field of surface water hydrology. (analysis of hydrological data with monitoring application, study of the dynamics of selected river basins in the country.)

Since 2008, she has held the academic position of Senior Research Associate, II degree.

From 1995 to 1997 he specialized at the International Institute for Infrastructure, Hydraulics and Environmental Engineering, Delft, Kingdom of the Netherlands, in the field of Hydrology, general meteorology, hydraulics, etc. and became a Master in Hydrological Engineering.

Since 2003 he has received the educational and scientific degree "Doctor" in the scientific specialty "Engineering Hydrology, Hydraulics and Water Management", with protocol No. 5 of 21.05.2003 of the Higher Attestation Commission under the Council of Ministers of the Republic of Bulgaria.

II. Requirements for research and applied science

Art. 29 (1), item 1, item 3, item 4, item 5, item 6, (2) and (3), Art. 29b (1) of the ZRASRB, Art. 60 (1), item 1, item 3, item 4, item 5, item 6, (2) and (4) of the PPZRASRB, Art. 56 (1), item 1, item 4, item 5, item 6, item 7, (2), (3) of the Regulations of the NIMH under the ZRASRB

The following submitted materials were considered for the preparation of the opinion:

- ✓ **Monograph** with a single author Elena Bozhilova with which she scored 100 points.
- ✓ **Publications** from indicator D as follows:

1. Stochastic Modeling of Osam River, Bulgaria, 2021 with authors P. Ninov, I. Ilcheva, A. Yordanova
2. High Flows Determination at Ungauged River Stretches Using Regionalization Approach (Example Mesta Watershed), 2021 P. Ninov, E. Bojilova.
3. Application of Stochastic Modeling in Determining the Available Water Resource for Dam Management in Bulgaria, 2021 with authors Yordanova A, I. Ilcheva, E. Bojilova.
4. Minimum river flow estimations – Tundzha river, Bulgarian case study, 2022 with authors Bojilova E., P. Ninov.
5. Technological approach for water resources determination in Iskar river water bodies, 2022 with authors P. Ninov, E. Bojilova.
6. Maximum flows of rivers in the Central Danube plain, 2023 with authors P. Ninov, E. Bojilova.
7. Statistical analysis of Yantra river flow, 2023 with authors E. Bojilova.
8. The changing climate of Bulgaria – data and analyses. data and analyses edited by Prof. Tanya Marinova and Assoc. Prof. Liliya Bocheva with authors Rankova M, K. Krumova, E. Bojilova.
9. Application of Methodology for Ecological Flow for Yantra River Basin in Bulgaria, 2024 with authors E. Bozhilova.
10. Methodology for Ecological Flow Applied to Tundzha Watershed in Bulgaria, 2024 with authors E. Bozhilova.

11. Comparison of the results obtained by the proposed methodology for environmental runoff with those calculated under current regulation, 2024 with authors Rankova, M., Bozilova E., Vuchkov B., Angelov Pl., Ivanova R.

12. About the applicability of ecological flow methodology for pilot drainage areas in Danube river basin directorate in Bulgaria, 2024 with authors Bozilova E., Vuchkov B., Rankova, M., Angelov Pl., Ivanova R.

13. ARMA models application for forecasting of the river discharge and the hydrological drought index SRI in dams management, 2024 with authors Yordanova A., I. Ilcheva, E. Bozilova, O. Nitcheva, Y. Dimitrov.

14. Assessment of the hydrological characteristics of the dams in the Yantra river basin, 2024 with authors E. Bozhilova.

15. Water Resources Determination in Yantra River Water Bodies - Technological with authors E. Bozhilova.

Of which he scores 300.3 points, with a minimum required score of 200 points.

- ✓ **Group of indicators "E"** - Citations - over 350 points with a minimum required score of 150.
- ✓ **Group of indicators "E"** respectively - E.18. Participation in a national scientific or educational project - 120 points, E.19. Participation in an international scientific project - 40 points, E.20. Management of a national scientific or educational project - 60 points, E.21. Management of an international scientific or educational project - 40 points. E.26. Utility model - 40 points, ***of which he scores 260 points. at min. required 150***

From the review of the materials submitted for participation in the competition for professor groups of indicators "D", "E" and "E" it is seen that for each of them the number of points collected significantly exceeds the minimum required national requirements under Art. 2b, para. 2 and 3 of the ZRASRB and under Art. 2, para. 4 according to the PPZRAS for the academic position "professor" in the field of higher education. The materials submitted are original, some of them independent, others with two, three and more authors, all on the topic of the competition. Based on all of them, Associate Professor Bozhilova has formed a reference with claims for scientific contributions on the topic on which she worked. They are in the field of Regional Hydrology, Hydrological Modeling and Participation in the development of a technological approach for determining water resources by water bodies. Work was carried out on the catchments of the Yantra, Tundzha, Iskar and Ogosta rivers.

I fully share the claims made by Assoc. Prof. Bozhilova for the originality of the contributions, as the in-depth work on the Yantra River watershed has allowed it to be formulated in a Monograph on the topic "Yantra River - Hydrological Analyses and Modeling of River Runoff" published in 2024.

Conclusion

From the inspection of the materials submitted for the competition, no violations were found in the procedure. The requirements of Art. 29 (1), (2), (3) of ZRASRB, Art. 60 (1), (2) and (4) and Art. 61 (1), (3) of PPZRASRB art. 56 (1), item 1, item 4, item 5, item 6, item 7, (2), (3) of the Regulations of NIMH under ZRASRB, **I give a positive assessment of the publications and materials presented by him for the selection of the candidate Assoc. Prof. Dr. Eng. Elena Kirilova Bozhilova for the award of the academic position "Professor in the professional field 5.7. Architecture, Construction and Geodesy, scientific specialty "Engineering Hydrology, Hydraulics and Water Management" (Quantitative assessment of water resources and runoff regime in conditions of drought and climatic variations) in the section "Surface and groundwater of the Department of Hydrology"**

Member of the scientific jury:

/Prof. Dr. Eng. Petar Kalinkov/