10.11.2025 г.

Appendix 7

# REVIEW

**on the competition for the academic position of "Professor" in the field of higher education 6. "Agricultural Sciences and Veterinary Medicine", professional field 6.1. "Plant Production", scientific speciality "Soil Science", announced in State Gazette No. 60 of 25 July 2025.**

Candidate: Assoc. Prof. Pavlina Naskova Atanasova, PhD
Reviewer Prof. Dr. Eng. Asen Nedev Atanasov

## 1. General information and biographical data

Assoc. Prof. Pavlina Naskova Atanasova was born in 1976 in Varna, where she completed her secondary education in 1995. She completed her higher education in Ecology and Environmental Protection at the Technical University of Varna in 2000 with a Master's degree in Ecology. Until 2012, she worked at the State Forestry Enterprise in Varna, and after successfully passing a competitive examination, she was appointed as an assistant doctoral student in the Department of Ecology and Environmental Protection at the Technical University of Varna. In 2012, she developed her dissertation on "Management of Heavy Metal Pollution in Natural Agro and Urban Ecosystems," which she defended at the N.Y. Vaptsarov Naval Academy while maintaining the topic. (Diploma No. 32/20.01.2016), after which he continued his work as an assistant professor at the Technical University of Varna.

After a successful competition, he was appointed as an associate professor in the Department of Plant Production at the Technical University of Varna (d.s.1.s.201/21.03.2019), where he has been working ever since. From 2019 to 2022, she was Director of the International Activities and Foreign Students Directorate. Since 2023, she has been Vice-Rector for Administrative and Economic Activities at the Technical University of Varna.

She is a member of expert groups at the National Agency for Academic Accreditation and Participates in the accreditation of doctoral programmes at higher education institutions and scientific organisations in her field of expertise.

These facts convince me of the stable development of the candidate Assoc. Prof. Pavlina Naskova in the field of higher education and professional direction 6.1, for which the current competition has been announced.

## 2. General description of the materials submitted

Candidate Pavlina Naskova has submitted 32 works for her participation in the competition, including a monograph, a book based on a defended dissertation, 22 publications in refereed and indexed journals, 8 articles in non-refereed peer-reviewed journals, one textbook and two teaching aids. I am very familiar with the content of the publications related to the dissertation and the first habilitation, which gives me reason to believe that the scientific works submitted for the competition do not repeat the previous ones.

This gives me reason to accept for review all works submitted for participation in this competition that are subject to evaluation. The documents submitted for the competition comply with ZRASRB and PPZRASB and with the requirements of Technical University of Varna. All

procedures and deadlines for their implementation have been met, which gives me reason to accept the materials submitted to me. The submitted report-declaration pursuant to Article 26 of the ZRASRB shows that the minimum requirements for scientific and teaching activities for the academic position of "professor" in field 6. Agricultural Sciences and Veterinary Medicine (professional field 6.1 Plant Production) have been met.

3. General description of the candidate's scientific research and applied scientific activity

The candidate's scientific research and applied scientific activity is characterised by four areas.

3.1. Research on the processes of heavy metal pollution in soil-plant agro- and urban ecosystems.

The work in this area covers the entire period of Pavlina Naskova's research activity (from 2012 to the present) and is the most extensive in terms of volume, occupying a significant part of her total output: it is the main part of the dissertation and the four publications related to it, it is included in Chapter 1 and § 3.1 of the monograph for the first habilitation in 2020, the results are published in 8 works in the publications for the first habilitation, and in the monograph for this competition in § 4.1, 4.2. I accept that, in thematic terms, these results are consistent steps towards the implementation of the simulation model of the dynamics of organic substances and heavy metals in the soil presented in Chapter 5 of the monograph.

2. Comprehensive studies of the antimicrobial properties of extractive solutions based on various raw materials and plant bases, methods for biochemical analysis, and technologies for the production of products for medical use or compost disinfection. These studies, aimed at the gradual digitisation of agriculture, are being developed jointly with doctoral students after 2020.

3. A statistical approach to assessment, forecasting and development of ecosystem management models based on hypothesis testing, discriminant analysis and signal and image recognition algorithms. This approach, adopted and adapted in the dissertation, is used as a basis for processing all experimental data obtained in the previous two areas. It can definitely be said that the use of modern probabilistic methods is a characteristic feature of the creative work of candidate Pavlina Naskova.

4. Investigation of the possibilities for application and assessment of the effectiveness of factors affecting the fertility of various agricultural activities and technologies. In terms of the calendar, research activities in this area relate to the period after 2020.

In my opinion, contributions to the presented scientific output should be sought in these four areas.

4. Assessment of the candidate's pedagogical training and activity.

I assess the pedagogical training of Assoc. Prof. Pavlina Naskova primarily on the basis of the courses she has taught as a lecturer at the Technical University of Varna, which are:

Bachelor's students, majoring in Agronomy: Botany – Part 1, Botany – Part 2, Ecology, General Microbiology, Ecology, Technologies for the Restoration of Damaged Soils, Landscape Science and Landscaping, Soil Science.

Bachelor's students, "Engineering Ecology" journal: Soil Pollution and Purification Technologies.

Master's students. "Production of Seed and Planting Material": Environmental Safety of Plant Production, Chemical Pollutants and Control Methods.

Master's students. "Seed Production and Plant Protection": Environmental Safety of Plant Production, Chemical Contaminants and Control Methods.

Attached to the document "Reference-declaration for the fulfilment of the additional requirements of the Technical University of Varna" regarding the candidate's activity for the academic position of professor are:

- a list of lectures given by Pavlina Naskova over the last three years;
- authorship or co-authorship in the development of the curricula for all disciplines taught by Assoc. Prof. Naskova (8 in total). These curricula are attached to the reference;
- published textbooks and teaching aids with reviewers and ISBN-978-954-20-0766-1. Univ. ed. at TU-Varna;
- list of doctoral students supervised by Assoc. Prof. P. Naskova who have successfully defended their dissertations (2)

The attached reports (Appendix 19) show that Assoc. Prof. P. Naskova is currently the academic supervisor of two more doctoral students.

The report on teaching workload (document No. 17) shows that over the last three years Assoc. Prof. P. Naskova has had a stable workload in terms of volume and subject matter, which will be guaranteed in the future.

In conclusion to this part of my review, I confirm that the pedagogical training and activity of the candidate Assoc. Prof. Pavlina Naskova Atanasova meet the minimum national and additional requirements of the Technical University of Varna for the academic position of "professor".

5. Main scientific and applied scientific contributions.

Before assessing the contributions, I would like to draw attention to the document entitled "Summary of Contributions", whose traditional form has been established over the years without being regulated, after some corrections in 2018 (State Gazette No. 56) and 2019. (State Gazette No. 5) is defined as "a brief statement in which the candidate describes the place of the research conducted in the relevant scientific field and their personal contributions", supported by a bibliography if necessary. My experience in training a large number of habilitated persons and reviewing an even larger number of procedures shows that most scientific organisations do not have established forms for this document, and relatively young researchers tend to give individual assessments of each publication separately. I am pleased to note that P. Naskova has presented a good self-assessment by summarising her own results and their place in the scientific field covered by the competition.

A. Contributions to the monograph "Modelling the dynamics of organic substances and heavy metals in soil".

A.1. Scientific contributions related to proving, with advanced and new methods and tools for the field of the competition, significantly new aspects of existing scientific fields and new methods and tools for research.

A.1.1 An adaptive simulation model of the vertical movement of organic substances and heavy metals in soil has been developed.

A1.2 A model of the migration processes of heavy metals between the components of closed systems of the "soil-plant-soil" type has been developed and tested.

A.2 Contributions of a scientific and applied nature, leading to the acquisition of new and confirmatory facts using researched and refined methods.

A.2.1 Local models have been developed for the assessment, prediction and management of heavy metal content in soil-plant systems.

A.2.2 Models of the dynamics of organic matter in soil horizons have been developed.

B. Contributions in the works submitted for review.

B.1 Contributions of a scientific nature, relating to the demonstration of significantly new aspects of existing scientific fields using new and improved methods.

B.1.1 A comprehensive model has been developed for assessing the distribution of heavy metals (lead, cadmium) in the soil by depth horizons and distance from the source of contamination. The model is based on the consistent application of hypothesis testing procedures, regression, correlation and discriminant analysis, probabilistic and deterministic recognition algorithms, risk assessment and decision making. I accept Assoc. Prof. Naskova's claim for theoretical novelty in improving the model by combining a priori data with new results from direct measurements (publications B3, G6, G7.1, G7.7, G8.1, G8.6).

B.2 Scientific and applied contributions, pending the receipt of new and confirmatory facts on known methods

B.2.1 A comprehensive approach has been developed and models and technologies have been tested in the production of extractive solutions with different raw material, technological and production conditions (G7.2, G7.3, G7.11, G7.12, G7.16, G7.18, G7.19, G7.20). I would like to draw particular attention to publications (G7.4, G7.5, G7.18, G7.19, G.8,1) which, when combined, meet the requirements of a good monograph: experiments in field and laboratory conditions , processing of a huge amount of data, results, technologies and a defended dissertation. If we add the publications (G6, G7.5, G7.10, G7.11) to those already mentioned here, I am inclined to recognise the development of the foundations of digitisation in agriculture as a scientific and applied contribution.

B.2.2 Scientific and applied contributions related to obtaining confirmatory facts for known methods, methodologies and technologies in agriculture.

-research on the effect of different types of fertilisation on the productivity of wheat and maize (G.7.1, G.7.6, G.7.9, G.7.14, G.7.15, G.7.22, G.8.2, E.22.1);

-research on the antibacterial properties of extracts against pathogenic microorganisms with a view to their application for the disinfection of compost-like mixtures (G.7.2, G.7.3, G.7.5, G.7.11, G.7.12, G.8.1);.

- investigation of the allelopathic effect of extracts from essential oil crops on plant growth in vegetable crops (G.7.16, G.7.20, E.22.1);

- microbiological approaches and techniques in the development of productivity and quality models based on the use of the potential of soil microorganisms and biological mechanisms (G.7.5, G.7.6, G.7.8, G.7.21, G.7.22, E.22.1);

-treatment, processing and use in agriculture of sludge from treatment plants (G.7.10, G.7.13, G.8.6);

-assessment and management of the environmental risk from fires, heavy metal impurities in the soil and the development of ecological disasters (B.3, G.6, G.7.13, G.7.17, G.8.5, G.8.6, G.8.8)

C. Applied contributions, which boil down to providing opportunities for using the results obtained in scientific research and agricultural practice and in environmental protection. I note that the data and results on the distribution of heavy metal pollution (lead) in deeper soil horizons and at a distance from the source, which in this case is not a point source but a linear one (a busy road). The data and results presented, obtained over the last 10 years, are a step forward in research of this type carried out by Kamenova, Bekyarova and Plugchieva.

D. Contributions of an educational and methodological nature, related to the development of curricula, co-authorship of one textbook and two teaching aids, and the supervision of four doctoral students, two of whom have successfully completed their studies.

6. Significance of contributions to science and practice

I have not been provided with documents proving the application of the contributions made to science and practice. The attached list of project participation shows that Assoc. Prof. P. Naskova has participated in four national and two international scientific/educational projects. The significance of the contributions to science is confirmed by the large number (22) of publications in journals that are referenced and indexed in world-renowned scientific information databases, which have created good opportunities for the specialised scientific community to become acquainted with the results obtained.

The minimum national requirements for scientific and teaching activities and the additional requirements of the Technical University of Varna for the academic position of "professor" have been met.

7. Critical comments and recommendations.

Having expressed my positive opinion of the materials presented in the previous part of this review, I would like to make some general recommendations.

With the exception of the monograph, the book and the two independent articles, the scientific output presented has been developed by large teams, in which Assoc. Prof. P. Naskova has played a prominent leading role in 10 publications (out of a total of 30). Without attaching serious importance to the authors' positions in the joint publications, I recommend that Assoc. Prof. Naskova, in her future work as a professor, begin to create her own scientific school with the participation of the doctoral students she supervises. In addition, I believe that it would be beneficial to guide her new doctoral students towards the initial development of applied tasks, with the aim of collecting their own databases and occupying their own scientific and applied space.

8. Personal impressions of the reviewer

I have been familiar with the work of Assoc. Prof. Pavlina Naskova since she joined the Technical University of Varna as a lecturer, noting her continuous development as a participant in inter-university and international teams and as an administrative manager. My opinion is positive.

**Conclusion**

My overall assessment of the content and scientific significance of the materials submitted for the competition is positive. This is based on the high level of scientific output and the active scientific and pedagogical activity of the candidate.

After analysing the documents and scientific works submitted for the competition and accepting the significance of the scientific, scientific-applied and applied contributions contained therein, I give my positive assessment and recommend that the scientific jury propose to the management of the Technical University of Varna to appoint Assoc. Pavlina Naskova Atanasova to the academic position of "professor" in the field of higher education-6. Agricultural Sciences and Veterinary Medicine, professional direction 6.1. Plant Production, specialty "Soil Science".

**Date: 10.11.2025**

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