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OPINION

on dissertation for obtaining the educational and scientific degree "Doctor" in: field of higher education 3. Social, Legal and Economic Sciences, professional field 3.7. Administration and Management, scientific specialty "Economics and Management (Forestry and Forest Industry)"

Author of dissertation: STEFAN PETROV BECHEV
Full-time doctoral student at the Department " Forest Inventory and Management" at the University of Forestry (UF), Sofia, Bulgaria.

Dissertation Topic: Study of the management of municipal forest territories in Bulgaria

Reviewer: Assoc. Prof. PhD NEVENA VASILEVA SHULEVA, University of Forestry; field of higher education 3. Social, legal and economic sciences, professional field 3.8. Economics, scientific specialty "Economics and management (by sectors)",

appointed as a member of the scientific jury by Order No. ZPS-668/24.11.2025 of the Rector of the University of Forestry.

1. Relevance of the problem.

The dissertation focuses on the analysis and assessment of the sustainable management of municipal forest territories in Bulgaria through the application of a system of criteria and indicators, which directly corresponds to European and international forest sector policies.

The relevance of the dissertation stems from the growing importance of sustainable forest management as a key element of public policies in the fields of natural resource management, regional development, and local self-government. Municipal forest territories represent a specific object of management that combines economic functions, environmental responsibilities, and social commitments to local communities. In this sense, they occupy a special place within the forestry sector and the system of public administration in the Republic of Bulgaria.

Under conditions of decentralization, limited financial resources, and increasing public expectations for transparency and efficiency, municipalities face significant challenges in managing their forest property. On the one hand, municipal forests are an important source of revenue and a means for implementing social policies, including the provision of firewood for local populations. On the other hand, they perform essential environmental functions related to biodiversity conservation, soil and water protection, climate change mitigation, and the provision of ecosystem services.

Additional relevance of the research is determined by the need for municipal forest management to comply with Bulgaria's international and European commitments in the field of sustainable forest management. In this context, systems of criteria and indicators for sustainable management acquire particular importance as tools for assessment, monitoring, and improvement of management practices. Despite their widespread

application at the international level, their implementation at national—and especially municipal—level remains limited and insufficiently studied.

Against this background, the dissertation addresses a real scientific and practical problem related to the lack of a comprehensive and systematic assessment of the management of municipal forest territories in Bulgaria. The research fills an existing gap in scientific studies by proposing a scientifically grounded approach to analyzing and evaluating management sustainability, adapted to Bulgarian conditions and the specific characteristics of municipal forest ownership.

For the above reasons, it can be concluded that the dissertation topic is not only relevant but also of high practical significance, as the research results can be used both to improve management decisions at local level and as a basis for future scientific research and policy development in forestry and public administration.

2. Degree of knowledge of the state of the problem and creative interpretation of the literature review.

The dissertation demonstrates a good level of familiarity with the current state of the research problem and contemporary scientific approaches in the field of sustainable forest management. The literature review is based on a wide range of Bulgarian and international scientific sources, as well as key international and European documents relevant to forest policy and natural resource management.

The main concepts of sustainable development and sustainable forest management are consistently presented, tracing their evolution and application at different levels of governance. Systems of criteria and indicators for sustainable management developed within international and pan-European processes are analyzed and compared in terms of their applicability at national and municipal levels, which represents a significant strength of the review.

The literature review goes beyond a purely descriptive presentation of sources and includes analytical generalizations that substantiate the research thesis and methodological choices. At certain points, a more in-depth critical discussion and clearer articulation of the author's position in relation to existing models and practices could further enhance the analytical value of the work. Nevertheless, it can be concluded that a solid and adequate theoretical framework has been established, effectively supporting the subsequent empirical analysis and the formulation of well-grounded conclusions.

3. Aim, objectives, hypotheses and research methods. Relevance of the chosen research methodology to the stated aim and objectives of the dissertation.

The aim of the dissertation is clearly and correctly formulated—to assess the management of municipal forest territories in Bulgaria and to develop recommendations for its improvement. The research objectives logically derive from the stated aim and cover the main stages of the research process—from theoretical justification of the concept of sustainable management, through the selection of criteria and indicators, to the application of specific assessment and analysis methods. This demonstrates good conceptual structure and consistency in the research design.

The research thesis is adequately formulated and corresponds to the object and subject of the study. It is substantiated within the context of existing scientific research and is confirmed by the results of the conducted empirical study. The formulated hypotheses are embedded in the logic of the research and the structure of the analysis, being

consistently derived through the set objectives and applied methods. Although methodologically sound and verifiable through the obtained empirical material, clearer and more explicit formulation of the hypotheses in the introductory part of the dissertation would facilitate tracing the research logic and enhance analytical clarity.

The selected research methodology corresponds to the complex and interdisciplinary nature of the problem under consideration. A combination of qualitative and quantitative methods is applied, including document analysis, empirical sociological research through surveys and observation, as well as the normalized scoring method. This methodological combination creates conditions for a more comprehensive and objective examination of municipal forest management and for obtaining comparable results.

Particular attention should be paid to the application of the normalized scoring method as a tool for quantitative characterization of sustainable management across individual criteria and indicators. The approach is appropriate to the research objectives and allows for aggregation and comparison of results. At the same time, from a methodological perspective, more detailed justification of the selection of specific indicators and their weighting would enhance transparency and reproducibility and facilitate application of the method in other research and management contexts.

In summary, the selected research methodology is consistent with the stated aim and objectives of the dissertation. The methodological choices enable the generation of reliable results and well-founded conclusions, while the identified opportunities for further development do not diminish the scientific value of the work but rather build upon it.

4. Visualization and presentation of the results.

The dissertation results are presented clearly, systematically, and in logical sequence, in accordance with the stated aim, objectives, and applied methodology. The analysis by individual criteria and indicators for sustainable management of municipal forest territories provides good clarity and facilitates tracing the relationship between empirical data and the derived generalizations.

Visualization of the results is mainly supported by tabular material—43 tables and 1 figure—with tables purposefully used to systematize and summarize quantitative relationships and to derive comparative assessments across criteria and indicators. This approach contributes to analytical clarity and detail.

The presentation of results from the normalized scoring assessment allows complex and multi-component management processes to be synthesized into comparable quantitative indicators, creating prerequisites for deriving generalized assessments of the state of sustainable management. In future research, broader use of graphical and schematic representations could further enhance intuitive visualization of results without affecting their substantive value.

Overall, it can be concluded that the results are presented in an appropriate and well-argued manner, with a good level of visualization and analytical clarity, forming a reliable basis for subsequent discussion and formulation of conclusions and recommendations.

5. Discussion of results and literature used.

The discussion of results is developed consistently and is directly linked to the stated aim, objectives, and applied methodology. The analysis covers the management of municipal forest territories in Bulgaria both historically—from the late 19th century to the early 21st century—and in a contemporary context, with emphasis on the period 2014–

2023, for which data on timber utilization and key management practices have been analyzed.

The obtained results are structured and discussed according to the six pan-European criteria for sustainable forest management, enabling a comprehensive assessment of ecological, economic, and social aspects of municipal forest management. Through the application of the normalized scoring method, comparable quantitative results are derived, allowing identification of both strengths and problematic areas in management practice, including maintenance of forest resources, protective forest functions, biodiversity, and socio-economic functions.

In the discussion, the PhD candidate links empirical results from surveys and document analysis with the theoretical framework of sustainable management and existing national and international practices. Comparisons with experiences from other Eastern European countries contribute to better contextualization of the results and to the formulation of well-grounded conclusions regarding the specific features of municipal forest management in Bulgaria.

The discussion leads to the formulation of concrete and practice-oriented recommendations aimed at improving municipal forest management, focusing on more effective application of criteria and indicators systems, enhancement of municipal management capacity, and better integration of economic, environmental, and social forest functions. At certain points, clearer analytical distinction between presentation of results and their interpretation could further increase analytical depth.

The literature used is extensive and relevant - 176 sources, including 84 in Cyrillic and 92 in Latin script, comprising scientific publications, international reports, and strategic documents. The sources are used appropriately and purposefully, supporting both the theoretical framework and interpretation of the results.

Overall, the discussion is well-argued and based on concrete empirical data, providing a solid foundation for identifying the scientific and applied contributions of the dissertation.

6. Contributions of the thesis.

The contributions of the dissertation directly stem from the conducted theoretical research, selected methodology, and analysis of obtained results.

Scientific contributions

1. It is demonstrated that the existence of a scientifically grounded system of practical criteria and indicators for sustainable forest management and its consistent application is a key prerequisite for improving the management of municipal forest territories, directly linked to the analysis under the six pan-European criteria.
2. Key concepts and terms used in sustainable forest management are systematized and theoretically substantiated in their economic, environmental, and social dimensions, forming a conceptual basis for subsequent analysis.
3. A scientifically grounded approach for quantitative assessment of criteria and indicators for sustainable forest management is adapted and applied, based on relative shares of respondents and scoring on a scale from 1 to 4.
4. An analytical model is developed for ranking criteria and indicators using normalized scores ranging from 0 to 100%, across three dimensions: level of

practical implementation, objectivity of monitoring, and significance for sustainable forest management.

Scientific and applied contributions

1. A survey questionnaire for studying sustainable management of municipal forest territories is developed and tested, applicable in the practice of municipal administrations and forest structures.
2. Practical ranking of criteria and indicators for sustainable management of municipal forest territories is conducted, enabling identification of strengths and problematic areas in management practice.
3. Opportunities are substantiated for improving the practical application of the pan-European indicators system in monitoring sustainable management of municipal forest territories in Bulgaria.

7. Assessment of the extent of the dissertator's personal involvement in the contributions.

The dissertation bears all the characteristics of an independent scientific study. The doctoral candidate's personal contribution is clearly evident in the formulation of the aim, objectives, and research thesis, in the development and application of methodology, as well as in the collection, processing, and analysis of empirical data.

The derivation of conclusions and formulation of recommendations are the result of the author's independent research work. Publications on the dissertation topic confirm the active and independent participation of the doctoral candidate in scientific research.

Overall, it can be concluded that the dissertation and its contributions are entirely the result of the doctoral candidate's personal scientific work.

8. Critical comments and questions.

The critical remarks made are of a clarifying and recommendatory nature and do not diminish the scientific or practical value of the dissertation. They are mainly directed toward opportunities for further development and enhancement of the research.

Clearer and more explicit formulation of research hypotheses in the introductory part of the dissertation would facilitate tracing the research logic and increase analytical clarity. Despite the good systematization and analytical value of the presented results, broader use of graphical and schematic representations would further enhance intuitive visualization of relationships between criteria and indicators.

In addition, future research could benefit from applying the developed quantitative assessment system in a broader comparative context (e.g., among different groups of municipalities or regions), revealing additional opportunities for improvement and validation.

Question to the doctoral candidate:

What are the possibilities for applying the developed methodology for quantitative assessment of sustainable management of municipal forest territories as a regular monitoring tool in municipal administrative practice?

9. Published articles and citations.

On the topic of the dissertation, the doctoral candidate has presented three independent scientific publications published in peer-reviewed journals—Management and Sustainable Development (two publications) and a special issue of Forest Science (one

publication). The publications are thematically related to the dissertation and reflect key aspects of the conducted research.

The abstract, with a volume of 39 pages, accurately and concisely presents the structure, content, main results, and contributions of the dissertation.

10. Assessment of the publications on the dissertation: number, nature of the publications in which they are printed. Reflections in science - use and citation by other authors.

The dissertation-related publications are published in peer-reviewed scientific journals ensuring the necessary scientific visibility and dissemination of results. They contribute to the development of research in the field of management and sustainable development of forest territories.

As of the preparation of this opinion, there are no available data on citations of the publications by other authors.

The presented abstract objectively reflects the structure and content of the dissertation.

CONCLUSION:

On the basis of the different research methods learned and applied by the PhD student, the correctly derived experiments, the made generalizations and conclusions, I consider that the presented dissertation meets the requirements of the FRAADB and the Regulations of the University of Forestry for its application, which gives me the reason to evaluate it as **POSITIVE.**

I take the liberty of suggesting that the Honourable Scientific Jury also vote in the affirmative and award STEFAN PETROV BECHEV the educational and scientific degree ***"Doctor"*** in the scientific specialty "Economics and Management (Forestry and Forest Industry)".

Date: 20.12.2025
Sofia

PREPARED
THE OPINION: .....
(Assoc. Prof. PhD Nevena Shuleva)