



NIKOLA VAPTSAROV NAVAL ACADEMY

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"FILII MARIS SUMUS"



REVIEW

on a dissertation for the acquisition of educational and scientific degree „doctor“

Author of the dissertation: Mirem Ercan Niyazi-Yusuf, PhD student in the doctoral program "Land Management (including cadastre and real estate appraisal)" in the Department of Geodesy at the Faculty of Technical Sciences of Konstantin Preslavski University of Shumen

Topic of the dissertation: "INVESTIGATION OF THE EFFICIENCY OF INTEGRATING THE CADASTRAL MAP WITH A MAP OF THE RESTORED OWNERSHIP OF THE TERRITORY OF THE REPUBLIC OF BULGARIA"

Prepared the review: Prof. Dr. Eng. Yuriy Ivanov Dachev,
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1. Relevance of the developed problem

In Bulgaria there is a legal framework that ensures the maintenance of an effective system of land administration. There are a number of weaknesses in its implementation that need to be overcome. The presence of obvious factual errors is a common phenomenon in cadastral plans and maps. They relate mainly to linear objects that can be removed by administrative procedures or in court. The reasons are different: errors in the transformation of cadastral plans and maps from one coordinate system to another, errors in the digitization of cadastral plans, errors in contact areas between the construction boundaries of settlements and between land, etc. In this regard, the dissertation is relevant because it focuses on the study of problems arising from the integration of the cadastral map with the map of the restored property. A solution to these problems is proposed by developing and experimenting with an appropriate methodology for improving the efficiency of the integrated cadastral map.

2. Does the doctoral student know the state of the problem and evaluate the creatively used literary sources

The doctoral student has a Master's degree in Geodesy, obtained in Konstantin Preslavski University of Shumen in 2017. The doctoral student's career as a designer and surveying engineer at Avtomagistrali Tchernomore JSD and as an assistant at the Department of Geodesy at Konstantin Preslavski University of Shumen has given him the

opportunity to gain sufficient knowledge and experience on the developed problem, as well as to formulate precisely the goal and tasks of the dissertation.

The literature used in the dissertation covers 50 sources. It includes textbooks, scientific publications, regulatory documents and internet sources concerning the cadastral map, cadastral registers, the map of the restored property and the information systems that support them.

The literature is correctly and appropriately selected and corresponds to the topic of the dissertation. It is suitable for the implementation of the goal and tasks of the dissertation: to study the effectiveness of integrating the cadastral map with the map of the restored property and to create a methodology for its improvement. The used literature was evaluated creatively, a good and thorough analysis was made in the interest of the research on the topic with correct references to specific sources.

In the first chapter, the doctoral student has performed a detailed analysis of the legislation on land ownership and the cadastre of the Liberation of Bulgaria from Ottoman rule to the present day. An analysis of the causes of incompleteness and errors in the cadastral map and cadastral registers has been performed. Important conclusions and summaries are made at the end of the review chapter.

The second chapter systematizes the sources of errors in the integrated cadastral map and cadastral registers. A very good analysis of the geodetic networks and the used coordinate systems and the problems arising from them has been made. The stages for transformation of the coordinates from one coordinate system to another are considered in detail. The methods and stages for converting graphic information into digital are systematized. Important conclusions have been drawn at the end of the second chapter.

In the third chapter a strategic analysis of the integrated cadastral map and cadastral registers for its strengths and weaknesses is made. A methodology for assessing the effectiveness of integrating the cadastral map with a map of the restored property on the territory of Bulgaria is proposed. The purpose, subject, scope and rules for its implementation are described. At the end of the chapter important conclusions are formulated.

The fourth chapter presents in great detail the results of experimental studies to assess the effectiveness of the proposed methodology for integrating the cadastral map with a map of restored property in Bulgaria. Various cases of incompleteness and errors in the cadastral map, located within the boundaries of one settlement, as well as a case in the contact zone of land are analyzed. It was concluded that the state administration should use modern sources and technologies to control the cadastral map such as satellite images, aerial photographs, materials from drones, etc.

Based on the results of experimental research, the conclusion of the dissertation confirmed the effectiveness of the methodology for integrating the cadastral map with a map of the restored property in Bulgaria. The summary is made that the created maps of the restored property after 1990 contain many errors, which have been transferred from the existing large-scale topographic maps. Large-scale topographic maps, created in the years 1964-1968, were used directly to create maps of the restored property, without re-aerial photography and deciphering of the objects. From the research, analysis and results obtained, the doctoral student concludes that the goals and objectives of the dissertation are met.

3. Does the proposed methodology provide an answer to the goals and objectives of the dissertation

I confirm that the methodology proposed and experimented by the doctoral student for integration of the cadastral map with a map of the restored property on the territory of Bulgaria gives answers to the set goals and objectives.

4. Contributions to the dissertation

I accept that the results achieved by the proposed methodology are the work of the doctoral student himself. On the basis of the results obtained in the dissertation the following scientific-applied and applied contributions are formed.:

Scientific and applied contributions:

1. An analysis of the regulations in the field of cadastre and the sources of errors in the integrated cadastral map has been made.
2. A methodology for establishing a clear factual error in the integrated cadastral map has been developed.
3. A methodology for identifying incompleteness and errors in the integrated cadastral map has been developed.

Applied contributions:

1. Real experimental researches of sites from the territory of Bulgaria have been carried out, proving the reliability of the developed methodology for eliminating the discrepancies in the integrated cadastral map and increasing its efficiency.

5. Applying the results of the dissertation in practice

In the experimental study the doctoral student described very well the results and the effectiveness of the proposed methodology for integrating the cadastral map with the map of the restored property on the territory of Bulgaria. The methodology can be successfully used in the work of the state administration.

The results of the dissertation are presented by the doctoral student in two separate publications.

6. Remarks and recommendations

I have several remarks and recommendations to the dissertation and the doctoral student's publications, which do not reduce their value and qualities:

1. There is no publication of the doctoral student with his / her supervisors. Certainly the research supervisors are involved in some form in the writing of the two publications proposed by the doctoral student.
2. The admitted remarks on the technical design of the dissertation are submitted to the research supervisors of the doctoral student.
3. Based on the accumulated experience, experimental research and the results obtained in the dissertation, the doctoral student should continue research in this field and publish their results in international scientific forums and publications indexed in world databases.

7. Abstract

The developed abstract of the dissertation is 66 pages long. It meets the requirements and very well reflects the content of the dissertation. Its volume can be reduced within 42 - 44 pages. At the end of the abstract there is no summary in English.

CONCLUSION

The dissertation work "STUDYING THE EFFICIENCY OF THE INTEGRATION OF THE CADASTRAL MAP WITH A MAP OF THE RESTORED PROPERTY ON THE TERRITORY OF THE REPUBLIC OF BULGARIA" has been completed. The doctoral student has the necessary qualities to assign the educational and scientific degree "DOCTOR" in accordance with the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria and the Regulations for its implementation.

I propose to the esteemed scientific jury to award Mirem Ercan Niyazi-Yusuf the educational and scientific degree "DOCTOR" in the scientific specialty "Land Management (including real estate cadastre and valuation)" to professional field 5.7. "Architecture, construction and geodesy".

**20.04.2022 г.
Varna**

**Prepared the review:.....
(Prof. Dr. Eng. Yuriy Dachev)**

