

REVIEW

by Prof. Ivan Gatev Markov, PhD, University of Veliko Tarnovo "St. Cyril and St. Methodius", Department "Tourism", scientific specialty "Economic and Social Geography"

With reference to: dissertation for the degree of PhD in the professional field 4.4. Earth Sciences (Economic and social geography, Regional and local development)

Author of the dissertation: Tanya Borisova Belichenova

PhD thesis: *MEDICO-GEOGRAPHIC ANALYSIS OF THE POTENTIAL FOR BALNEO AND CLIMATE TREATMENT IN VELINGRAD MUNICIPALITY AS A FACTOR FOR LOCAL DEVELOPMENT*

Grounds for preparation of the review: Order ПД 38-327 of 14.07.2021 of the Rector of Sofia University "St. Kliment Ohridski" for appointing a Scientific Jury and a decision from the first meeting of the Scientific Jury.

1. Introduction of the doctoral student

Dr. Tanya Borisova Belichenova is a doctor with two specialties - pediatrics and physical therapy and rehabilitation. She has specialized in new SPA and WELLNESS technologies in Paris, London, Tel Aviv, Dubai, Barcelona, Bergamo, Milan, Malta. She has worked as head of rehabilitation department, manager of SPA and medical centers of five- and four-star hotels. She is a member of the Board of Directors of Kamena Medical Center. Licensed teacher of new SPA and WELLNESS technologies. She is currently the chief expert in balneology, SPA and WELLNESS of the association of hoteliers and restaurateurs of the municipality of Velingrad and Western Rhodopes.

She has presented Bulgaria and Velingrad municipality at a number of international and national congresses and conferences in Moscow, Cesme, Paris, Palermo, Kishinev, Ekaterinburg, Malta, etc. She has been awarded a number of prizes such as - BALKAN SPA AWARD SKOPIE for overall contribution to the development of SPA and WELLNESS in the Balkans; Bulgaria's first Beauty Oscar; BUBSPA Innovation Award; ECPA Diploma for Innovation and Bulgarian Contribution to the Development of the European SPA and WELLNESS Industry; "Golden Star" for overall contribution to the development of SPA and WELLNESS in Bulgaria, etc.

By Order ПД-20-899 of the Rector of Sofia University "St. Kliment Ohridski" of 02.02.2020 Tanya Borisova Belichenova was enrolled in a PhD program of independent training in the professional field 4.4. (Economic and social geography, Regional and local development) at the Department "Socio-economic geography" of the Faculty of Geology and Geography from 01.07.2020 to 01.07.2023. Assoc. Prof. Dr. Plamen Georgiev Patarchanov has been appointed as scientific supervisor.

By order ПД-20-1318 of 09.07.2021 of the Rector of Sofia University "St. Kliment Ohridski", Tanya Borisova Belichenova was dismissed early with the right to defense as of 30.06.2021. She speaks Russian, English, and medical English.

2. General characteristics of the dissertation

2.1. Evaluation of the volume and structure

The dissertation submitted for review is 206 pages in total, of which 171 pages are text. It consists of an introduction, five chapters and a conclusion. The text includes 14 figures (including maps, charts and graphs) and 20 tables. The list of used references is 10 pages, with a total of 172 sources - 91 in Cyrillic, 69 sources in Latin, 12 other sources, including 38 normative, strategic and planning documents and 21 internet addresses.

The volume of the dissertation work sufficiently reflects the author's ideas and the results of the empirical research on the potential for balneotherapy and climatotherapy as a factor for local development of Velingrad municipality.

The paper is presented in five chapters. The annexes to the dissertation (in the same book body) are 19 in number, with a volume of 32 pages. They include 14 individual cards, two figures and 10 tables.

The peer-reviewed dissertation meets the requirements of article 27/2/ of the Regulations for the Implementation of the Academic Staff Development Act - it is presented in a form and volume corresponding to the requirements of the primary scientific unit.

2.2. Evaluation of the relevance of the topic

The relevance of the topic is determined by:

- The underestimated role of the healing properties of mineral water in Velingrad municipality and the lack of adequate assessment of the more favourable impact of balneotherapy and climatotherapy and prophylaxis on difficult to treat and progressive diseases and diseases of great social importance.
- The illegal and inefficient exploitation of the numerous local water sources in the territory of the municipality of Velingrad.

2.3. Evaluation of the subject, object, goals and objectives of research

The object of research is the potential of mineral springs and climatic resources of Velingrad municipality and their curative characteristics.

The subject of research are the qualities of the thermal mineral springs and climatic resources, their condition and potential from a medical and ecological point of view, as well as their influence on the health status of the patients. The author focuses her research on the role of economic activities related to these resources and the impact on the development of the municipality. A methodology for its inclusion and positioning in the European thermal recreation cluster is proposed.

The research is based on the interdependence and the links between the effective use of natural resources and the impact of socio-economic and spatial development of the municipality and the region.

A significant scientific objective has been set to carry out a medico-geographical analysis of the potential for balneotherapy and climatotherapy in the municipality of Velingrad as a factor for local development. The tasks of the research are realized by solving nine problems.

The main *hypothesis* supported by the author is that the benefits of the proper exploitation of mineral springs are not yet realized and a new sustainable policy is needed to encourage a more responsible use of these resources.

2.4. *Evaluation of the methodological tools*

To achieve the goal of the research and solving the resulting tasks, a complex methodology was used, including general scientific and private methods and approaches for analysis and research (systemic, inductive, deductive, comparative, analysis of spatial interrelationships, etc.). It enriches theoretical knowledge by introducing **a model for assessment of individual components** of the use of thermal mineral springs for recreation and provides in-depth analysis and assessment of the interaction between improving the overall health status of patients and the use of natural resources.

The research focuses on the new reading and holistic approaches to health, presenting factual research of mineral springs and making a complex compilation of the so-called “key-pillars”, pillars or colossi: prevention, spa and wellness, rehabilitation and treatment in one, namely the integration of Velingrad into the thermal recreation cluster. A *conceptual model* of analysis is applied in terms of the historical overview of thermal mineral springs and the effective assessment of their role in recreation, health, ecology, etc.

Tanya Borisova Belichenova shows good awareness of the potential of mineral springs and climatic resources of Velingrad municipality, their healing characteristics and their impact on local development. The research was carried out on the basis of 172 sources in Cyrillic, 69 sources in Latin, 12 other sources, including 38 normative, strategic and planning documents and 21 internet addresses. The information used is from NSI, OSB Pazardzhik and Velingrad municipal administration.

2.5. *Evaluation of the dissertation content*

The **first chapter** of the thesis systematizes the main points in the theory and methodology of regional geographic research. Regional geographic research implies the consideration of space and territory as a complex, dynamically functioning and open geographical system. It also analyses the main issues such as: theoretical and methodological aspects of medico-geographical research, medico-geographical research in scientific knowledge and social practice, climatology in the process of diversification and unity with balneology and alternative medicine, balneotherapy and its derivatives in support of conventional health care of the XXI century, etc. The doctoral student concludes that the fields of balneoclimatology, resort medicine and the listed SPA-procedures and wellness

tourism are not only a stepping stone for improving the general healthy human status, but also an opportunity for effective tourism development.

In the **second chapter** a medical-geographical analysis of the resource potential of Velingrad municipality is made. Considering the natural resource potential, special attention is paid to the hydrothermal resources. The author concludes that the hydrographic network is characterized by high density, as its quality indicators are stable, with naturally guaranteed conditions for long-term reproduction and relatively constant water regime, which is facilitated by the combination of elements of the natural environment.

Performing a detailed analysis of hydrothermal resources /condition and exploitation of mineral waters, composition and properties in boreholes and catchments/, the doctoral student comes to important conclusions:

- water from all deposits is hyperthermal, mineralized, sulphate-hydrocarbonate, sodium and silicate, containing fluoride, without sanitary-chemical and microbiological signs of contamination, and the value of the radiological indicators is within the norms for mineral waters.
- the content of trace elements and the values of the radiological indicators are within the permissible limits. The water meets the requirements of Ordinance №14 for the resort resources, the resort areas and the resorts.
- Almost all deposits are suitable for the treatment of diseases of the PNS, musculoskeletal system, lung and joint diseases, etc.

The analysis shows the in-depth knowledge in the field of **balneology, medical hydrology and resort medicine**, which according to the doctoral student are not yet recognized as separate scientific fields.

In the **third chapter** an analysis of the balneotherapy in the municipality of Velingrad is made. An in-depth analysis of the influence of a number of elements of the natural environment that in their totality have a positive impact on a number of diseases is carried out. The conclusions reached by the author in the course of the complex treatment is that mineral water in various forms has an extremely beneficial effect in the prevention, treatment and rehabilitation of diseases of the musculoskeletal system, peripheral nervous system, post-fracture conditions, diseases of the respiratory system and others.

In the **fourth chapter** a conceptual model for inclusion of Velingrad in the European thermal cluster is proposed. The trend of using warm mineral water for body relaxation is becoming global. There is an increasing emphasis not so much on treatment and rehabilitation as on prevention and prophylaxis, although all are placed under a common denominator in importance.

In recent decades, the holistic approach, which is based on the concept of harmony between spirit, soul and body, has prevailed. In addition, a complex MULTI-METHOD and a model for evaluation of hot mineral springs for health, prevention, recreation, wellness and spa have been proposed. It is concluded that geothermal springs are used in almost all tourist sectors: SPA and wellness; balneology and hydrotherapy; ecotourism; nature-friendly tourism. The presence of a volcanic environment is a prerequisite for the successful development of extreme tourism.

In the **fifth chapter** the focus is on the influence of balneology and climatotherapy and spa tourism as a factor for the development of Velingrad municipality. According to the

author, the impact of spa and wellness tourism on the local development of Velingrad municipality will be influenced by such factors as the geographical location and the available potential, the aspiration for sustainable tourism development.

Research shows that in the municipality of Velingrad 85% of the working population is employed in the hotel, restaurant and related activities sector. This proves the huge role that economic and medical activities have in the overall economic profile of the municipality.

On the territory of Velingrad municipality there are several post-treatment hospitals that offer health services at the highest level in the modern development of balneology and climatotherapy.

Analyzing the spatial structure, the settlement network, the doctoral student concludes that the municipality needs the targeted creation of at least two secondary spatial centers, and such a role can be performed by the village of Sveta Petka and the village of Grashevo.

Assessing the opportunities for visiting tourists for spa treatment, opportunities for the best access through road connections are offered to ensure a direct influx of tourists from neighboring countries.

The presentation of Velingrad municipality on the international tourist market will be in close connection with sites and settlements with tourist potential such as Rakitovo, the tourist location Tsigov Chark, Tsepina fortress (Dorkovo village), Yundola village, the tourist locality Starina, Belmeken mountain sports base, Batak, Golyam Beglik Dam, etc., which complement the main tourist product.

3. Scientifically-applied contributions in the dissertation

Scientific-theoretical contributions:

- The conducted complex research confirms the influence of geothermal and ecological factors on the general profile of the town of Velingrad and its European and world significance.
- The conducted detailed research and assessment of the role and favorable recreational impact of the available hydro-mineral resources, the composition of the mineral water and the results of the research of the improvement of the health status from the real practice contributes to the inclusion of Velingrad in the European thermal and ecological cluster.
- The thorough research and evaluation of the role and the beneficial recreational impact of the available hydro-mineral resources, the composition of the mineral water and the results of the study of the improvement of the health status from the real practice contribute to the inclusion of the town of Velingrad in the European thermal and ecological cluster.

Scientifically-applied contributions:

- The application of the constructive paradigm - how the healing mineral water used for underwater gymnastics in pools with radon water improves the overall health status of patients suffering from various diseases, prove how concepts and theories are linked through studying behavior and recreational and therapeutic outcome;
- The Ellipsoid of Asclepius developed by the author finds that sunshine, mineral springs and fresh air have a healing effect on those suffering from pulmonary, cardiovascular, joint and

other diseases; The Ellipsoid brings together the natural potential of the region and explains why it is a major factor in the development of tourism, prevention, balneotherapy, resort medicine, spa and wellness and recreation.

- The complex medico-geographical research of the resources for balneological and climatic treatment, contribute to increase the role of the regional researches in the border area of the medical geography and confirm the need for their deepening.

- The studied socio-economic and spatial-territorial impacts of balneology and climatotherapy confirm their importance for the local economy and the need for more effective organization and management in the interest of the local community.

- The knowledge generated by the practical participation of the author in the complex development and application of therapeutic and recreational programs with a combination of mineral water, inhalations, ultrasound, interference current, therapeutic gymnastics, radon water (Epistemology) on the territory of Velingrad, improve overall health status and support prevention, recreation and treatment of the observed patient groups.

- The trained specialized staff for the recreational and spa industry in the region, as part of the study, strengthen the applied aspect in the field of balneology and climatology, spa and wellness for the region and for Bulgaria.

- A number of the conclusions in the study can find a real place in the updating of the strategic and planning documents, both at municipal and regional level - Plan for integrated development of the municipality, ISPR at level 2, Strategy for tourism development and others.

5. Other requirements for the doctoral student and the dissertation

Tanya Borisova Belichenova offers 17 publications on the topic of study. They are in specialized editions, and also in the yearbook of Sofia University "St. Kliment Ohridski", vol. 2 Geography. The provided publications reflect parts of the dissertation and provide it with publicity. In terms of quantity and structure, they far exceed the requirements of the Regulations for the Implementation of the Academic Staff Development Act of Sofia University "St. Kliment Ohridski". The presented abstract is 65 pages and contains the main points of the dissertation and meets the requirements.

4. Conclusion

In conclusion, the proposed thesis proves that the doctoral student demonstrates in-depth knowledge, skills and preparation for independent use of the methods of scientific research, scientific literature, results of practical research, statistical and other information. The presented study fully meets the requirements for dissertation work. The dissertation contains the required scientific and scientific-applied results. The presented dissertation is up-to-date and in a complete form. Practical results are demonstrated in the work, which represent an original contribution of the doctoral student. The exposition is clearly and richly illustrated, and the language and style are in accordance with the standards of scientificity and authenticity.

The quality of the dissertation and the accompanying documents give me a reason to give a categorical positive evaluation (YES) on the award of the educational and scientific degree "PhD" to doctoral student Tanya Borisova Belichenova, Professional field 4.4. (Economic and Social Geography, Regional and Local Development).

Prepared by:

01.09. 2021

(Prof. Ivan Markov, PhD)