PAPER ON THE CONCEPTUAL DEFINITION OF THE GEO-TOPOGRAPHIC SUPPORT

Dejan R. Đorđević[*]
Dragoljub Sekulović[**]

Достављен: 12. 11. 2020
Кориговано: 14. 12, 28. 12. 2020.
08. 01. и 20. 01. 2021.
Прихваћен: 22. 01. 2021

Језик рада: Српски
Тип рада: Прегледни рад
DOI број: 10.5937/vojdelo21010118D

The Serbian Armed Forces support represents a part of the military activity aimed at creating conditions for the execution of missions and tasks. For successful support, it is necessary to establish the cooperation with relevant institutions of the Republic of Serbia. The conceptual definition of the geo-topographic support has been researched in the context of previous and current regulations, which have shown that the achievements of information and communications technology have influenced not only the development of the geographic information systems, but also directly the definition of this concept. The importance of the geographic information systems in the collection, processing, analysis and use of geospatial data has also determined the contents of the geo-topographic support. The continuous development of the geographic information systems in the direction of establishing a service-oriented approach to the distribution and use of geospatial data, will directly affect the future improvement of the content of the geo-topographic support. Such a process is accompanied by the establishment of the geo-topographic support principle, which should enable the construction and maintenance of a stable structure, in order to successfully carry out the assigned missions and tasks of the Serbian Armed Forces.

Key words: *geo-topographic support, operations, geographic information system, geoinformation, interoperability*

[*] Serbian Armed Forces, Intelligence and Reconnaissance Affairs Department (J-2), Military Geographical Institute „General Stevan Bošković", Belgrade, dejandjordjevic.vgi@gmail.com

[**] Faculty of Information Technologies and Engineering, „Union – Nikola Tesla" University in Belgrade.

Introduction

The geo-topographic support is one of the Serbian Armed Forces support services. The main work on the organization and conduct of the geo-topographic support is done by the Geodetic Service of the Serbian Armed Forces and, as stated on the official website of the Serbian Armed Forces, it is one of the "interservice expert services intended for planning, organizing and carrying out land surveying, collecting geospatial data, producing and publishing the geo-topographic materials".[1] For the good functioning of any complex system, and thus the conduct of a certain activity within the defense system, it is necessary to know the main essential premises that define this activity, its contents and basic principles.

The subject of the research in this paper is the consideration of the conceptual definition of the geo-topographic support in the context of previous and current regulations that define it, as well as certain cause and effect relationships that affect the definition of this term. The comparative historical method has been used to research the knowledge about the origin and development of the concept of the geo-topographic support in the Serbian Armed Forces. The comparison with related concepts has been carried out in the research in order to determine similarities or differences, as well as their relationships and connections. The formal-logical analysis presents the contents of the geo-topographic support, where there is a dialectical connection, that is, mutual characteristics and connections that make up the whole, but due to the limited size of the paper a smaller part has been processed by the dialectical analysis.

The objective of the research is to critically consider the concept of the geo-topographic support, in terms of theoretical and scientific definition of the correctness of the concept, in order to generalize certain facts and knowledge in the following period through experiential knowledge in theory and practice.

Support in Military Operations

According to the types of units and institutions of the Serbian Armed Forces that are provided with support, the objective to be accomplished, its importance and the scope of taken measures, support is planned, organized and performed at the strategic, operational and tactical level, and it is conducted continuously. The contents of the support of the Serbian Armed Forces, based on the 2010 Doctrine of the Serbian Armed Forces, are shown in Figure 1.

Support includes the creation of the most favourable conditions for the execution of specific duties and certain tasks. Support in (military) operations is very important and it can, to a greater or lesser degree, determine the viability of all forces participating in the operation.

[1] http://www.vs.rs/sr_cyr/o-vojsci/opste/sluzbe-vojske-srbije#geodetska, 09/01/2021.

Figure 1 – *The geo-topographic support in the Serbian Armed Forces support system*

Therefore, according to the Operations Doctrine of the Serbian Armed Forces, "the support of forces in an operation is organized in a timely manner, continuously and completely, at all levels, in accordance with combat, weather and space conditions."[2]

Support in peace creates the necessary conditions for the functioning of commands, units and institutions and the execution of missions and tasks in various operations that are performed and in which the Serbian Armed Forces can participate. In armed conflicts, support is much more complex due to greater and more dynamic consumption of resources, the direct impact on people's lives and the execution of assigned tasks. In that sense, it is one of the main contents of combat operations. It is organized in a timely manner, continuously and completely, at all levels of the organization of forces, in all types and forms of combat operations.[3]

The Concept of the Geo-topographic Support

The development of information and communications technology affects almost all spheres of life including the conceptual definition of the geo-topographic support, which can be seen through the implementation of the Geographic Information System (GIS) for collecting, storing, checking, analysing, modeling and displaying information with reference to the Earth's surface for specific purposes. The accuracy of information is the most important, along with the possibility to link the information with the adequate position reference system.[4]

[2] *Doktrina operacija Vojske Srbije*, Medija centar „Odbrana", Beograd, 2012, p. 74.

[3] Božidar Forca: *Doktrinarni aspekt priprema upotrebe i obezbeđenja Vojske Srbije,* Novi glasnik 3/2009, Medija centar „Odbrana", Beograd, 2009, p. 27.

[4] Dragoljub Sekulović, Ljubomir Gigović: Geografski informacioni sistemi u komandnim i kontrolnik informacionim sistemima SYM-OP-IS 2008, Zbornik radova, Soko Banja, 2008, p.145.

When considering space as a factor in war, the starting point is the fact that the armed forces perform their tasks, in peace and at war, in a certain geographical area. It includes physical-geographic and socio-geographic phenomena that intertwine, condition and transform each other, and in that way they influence the performance of numerous tasks in the field of preparing and waging a war.[5] Thus, geospatial data play a very important role in all military operations and are closely related to the geo-topographic support.

The syntagm *geo-topographic support* consists of two words – *geo-topographic* and *support*. The doctrinal definition of the term *support* has already been mentioned, and the expression *geo-topographic* consists of the following three words of the Greek origin: "*gea*" – Earth, "*topos*" - place, area and "*graphō*" – I draw, note. This means that the literal translation of the syntagm *geo-topographic support* would mean: drawing, noting areas and places on Earth in order to create the most favourable conditions for the execution of specific duties and certain tasks.

The geo-topographic support has been mentioned since the 1970s in teaching students of the Geodetic Department at the Military Academy, but has not been covered in the military literature. The lectures of Ivan Buder,[6] who was at that time engaged as a lecturer at the Geodetic Department of the Military Academy, have been saved. Speaking on the topic: *The basic principles of the geo-topographic support* the following remark remained noted: "The geo-topographic support of the armed forces includes a set of measures and procedures (in peacetime and at war) aimed at preparing, producing, processing and distributing the geo-topographic and hydrographic materials, data and documents required for the preparation and conduct of combat operations of all arms and branches of the armed forces."

In the study *The status and directions of the further development of the Geodetic Service* from 1989,[7] the geo-topographic support is conceptually defined for the first time in some of the official documents. It says that "the geo-topographic support is a special and very important type of providing the armed forces with necessary materials, data and documents necessary for planning, preparing and executing combat operations in a certain area". In his paper, Radenko Višnjić says for the geo-topographic support that "it includes measures, procedures and activities aimed at timely collection, processing, preparation and submission of the data on Earth, soil and waters of land and sea, necessary for preparing, planning and monitoring combat operations"[8] Furthermore, the conclusion states that it is necessary to define the place and role of the geo-topographic support in doctrinal documents and to develop the Guidelines for the geo-topographic support.[9] The aforementioned statements

[5] Dragoljub Sekulović, Vangel Milkovski: *Vojnogeografska procena ratišta*, Vojno delo, Vol. 57, br. 1, Beograd, 2005, p. 94.

[6] The lectures by Colonel of the Geodetic Service Ivan Buder on the topic: *The basic principles of the geo-topographic support* are kept in the Military Geographical Institute.

[7] The study originated from the Conference held on this topic on November 2, 1988 in the Military Geographical Institute.

[8] Radenko Višnjić: *Geotopografsko obezbeđenje oružanih snaga SFRJ*, Zbornik radova Vojnogeografskog instituta, Beograd, 1989, p. 18.

[9] Ibid., p. 26.

indicate that the doctrinal definition of the geo-topographic support has not been made until then. Namely, the comprehensive monograph *The Geodetic Service of the Yugoslav People's Army*[10] (period from 1945 to 1985) neither deals with this term, nor does it state that the geo-topographic support is one of the activities of the Geodetic Service. Until those years, inter alia, the main tasks of the Geodetic Service were to "study those geophysical, geographical, topographic and hydrographic features of land, topographic and airspace that are important for planning, conducting and monitoring combat operations",[11] which could be the geo-topographic support.

A few years later, in the first Regulation of the Geodetic Service, in 1996, it was doctrinally defined for the first time that "the geo-topographic support includes a set of measures, procedures and activities for researching user needs, collecting and processing geospatial data, issuing, storing and distributing the geo-topographic materials (GTM) and establishing the Geographic Information System".[12] When defining this term, it has been noticed that there is a connection between the geo-topographic support and GIS.

According to the amendments to the first Regulation of the Geodetic Service and the adoption of the following one in 2002, the concept of the geo-topographic support was partially changed and expanded, so it was defined that the geo-topographic support "represents a specific type of providing units, commands and institutions and other defense authorities with geospatial data necessary for training, planning, preparing, conducting and monitoring combat operations on land, sea and in the air. It includes a set of measures, procedures and activities, in peacetime and at war, on researching user needs, collecting and processing geospatial data, issuing, storing and distributing the geo-topographic materials and establishing the Geographic Information System".[13] It can be noticed that this definition is a compilation of the terms listed in Ivan Buder's lectures and those ones in the 1996 Regulation of the Geodetic Service.

The 2010 Doctrine of the Serbian Armed Forces defines that the geo-topographic support "includes the collection and processing of geospatial data, development of the geo-topographic materials and the use of GIS to support the decision-making process, defining the elements of the deployment of national and enemy forces and preparing the elements for fire." The development and implementation of GIS is very important for the conduct of the geo-topographic support. The contents of the geo-topographic support are defined by expert bodies of the Serbian Armed Forces commands, units and institutions.[14] As it has already been emphasized, GIS is very important in supporting the implementation of the geo-topographic support, but it is not the only factor of this support.

The adoption of the Regulation of the Geo-Topographic Support in 2015 defined that "the geo-topographic support is a part of the Serbian Armed Forces support services, aimed at collecting, processing and displaying geospatial data in order to create the

[10] Miroslav Peterca, Gvozden Čolović: *Geodetska služba JNA,* 1945-1985, VINC, Beograd, 1987.

[11] Ibid., p. 5.

[12] *Pravilo Geodetske službe Vojske Jugoslavije,* Sektor za operativno-štabne poslove GŠ VJ, Beograd, 1996, p. 8.

[13] *Pravilo Geodetske službe Vojske Jugoslavije,* Operativna uprava GŠ VJ, Beograd, 2002, p. 9.

[14] Doktrina Vojske Srbije, 2010, p. 115.

conditions that provide the possibility to visualize the area for conducting operations and positioning national and enemy forces and others participants in the operational environment, it facilitates planning, organizing and executing an operation, and preparing the elements for an action on the targets and facilities in an area of operation".[15] Due to precise definition and broader understanding of the geo-topographic support, there is an additional explanation in the further text of this Regulation: "The geo-topographic support includes the collection and processing of geospatial data, the development of the geo-topographic materials and the use of GIS to support the decision-making process, defining the elements of the deployment of national and enemy forces and preparing the elements for fire".[16] However, the role of the geo-topographic support in the missions and tasks of the Serbian Armed Forces has still not been individually defined.

In order to carry out a more comprehensive study of the term of the geo-topo-graphic support, and for a better understanding, as well, it is necessary to make a comparison with the term "geo support", as a close term. For Miroslav Pavlović,[17] "the geo support is a general term for providing geospatial data[18] because he views the geo-topographic support only as a part of the geo support, i.e. providing data on land. As special support services, in addition to the geo-topographic support, Pavlović distinguishes hydrographic-navigation and airgraphic-navigation support, guided by the fact that the planning and executing operations is done by engaging forces on land, at sea and in the airspace. Such a narrow division of geographical area leads to parcelling out the geo support, i.e. narrowing the concept of the geo-topographic support according to the types of the geo-topographic materials.

Taking into account the meaning of both terms, the first (geo support) and the second (geo-topographic support), it can be concluded that both approaches to defining this term start from the premise that it is a general term for the overall provision of geospatial data. According to the author (Pavlović M.),[19] who views the geo-topographic support as a part of the geo support, it can be concluded that the geo-topographic support, although a narrower term, has taken on theoretical generality that the geo support has. In that sense, these two terms are synonymous.

On the other hand, some authors such as Boban Milojković and Sasa Milojević,[20] view the geo support as a "general term for the overall activity of the geo sciences".[21] On the basis of this, the terms "the geo-topographic support of the armed forces, the geo-topographic support of the police and the geo-topographic support for civilian structures (architecture, construction, urban planning, spatial planning, real estate

[15] *Pravilo geotopografskog obezbeđenja,* Medija centar „Odbrana", Beograd, 2015, p. 13.

[16] Ibid., p. 13.

[17] For example: Miroslav Pavlović (a former teacher of military topography at the Military Academy) *Geotopografsko obezbeđenje vojske,* ŠONID*,* Beograd, 2002, p. 10.

[18] Ibid., p. 10.

[19] Miroslav Pavlović, *Geotopografsko obezbeđenje vojske,* ŠONID*,* Beograd, 2002.

[20] Boban Milojković, PhD, Full Professor and Saša Milojević, PhD, Full Professor, University of Criminal Investigation and Police Studies in Belgrade.

[21] Boban Milojković, Saša Milojević: *Neki aspekti geotopografskog obezbeđenja upotreba policijskih jedinica posebne namene,* International Journal of Disaster Risk Management, 2013, p. 1.

cadastre, environmental protection, etc.)"[22] have been derived. In order to better understand this division, one should know that these authors con-sider the geo-topographic support as "professional education, training and advanced training of personnel for collecting and processing geospatial data, its permanent research, cartographic modeling including the modern geo-topographic materials and their skillful use and update".[23] This means that the term geo-topographic su-pport as a part of the geo support represents complex scientific research, produc-tion, educational and distributive activities of civilian and military geodetic services, higher education and scientific research institutions, on timely collecting, processing, thematic-topographic modeling, delivering, exchanging, updating and storing geo-spatial data.[24]

The aforementioned conceptual definition of the geo-topographic support overemphasizes the importance of scientific research, which should certainly enable the implementation of modern technical and technological solutions in the collection, processing, display of geo-topographic data, as well as the modern use of the geo-topographic materials and GIS. Moreover, this definition neglects the direction of the geo-topographic support towards the implementation of GIS, which allows users to visualize the space.

As it can be seen, the syntagm geo-topographic support is accepted in the terminology of the field formerly called the art of war or defence science or military science,[25] and it has not been widely accepted and represented in geosciences. The geo-topographic support is the subject of the study of military sciences that belong to the educational-scientific field of social sciences and humanities. It is used under the same name by police units in the Republic of Serbia. The geo-topographic support includes several scientific fields, i.e. it is multidisciplinary, and above all, it belongs to the social-humanistic scientific field. The term itself directly indicates that it belongs to the natural-mathematical scientific field, as well, but within the mentioned field this term has hardly been studied, except when it comes to military geography and military topography, which indicates that it belongs to the field of "military sciences".

The Contents of the Geo-topographic Support

In accordance with the Doctrine of the Serbian Armed Forces, the Strategy of Defence of the Republic of Serbia[26] defines the following missions of the Serbian Armed Forces: 1. defence of the state from external armed threats; 2. participation in

[22] Milojković B.: *Geotopografsko obezbeđenje upotreba jedinica policije u akcijama zaštite i spasavanja od poplava u maju 2014. godine,* Policijska akademija, Bezbednost 2/14, 2014, p. 12.

[23] Boban Milojković, Saša Milojević: *Neki aspekti geotopografskog obezbeđenja upotreba policijskih jedinica posebne namene,* International Journal of Disaster Risk Management, 2013, p. 1.

[24] Milojković B.: *Geotopografsko obezbeđenje upotreba jedinica policije u akcijama zaštite i spasavanja od poplava u maju 2014. godine,* Policijska akademija, Bezbednost 2/14, 2014, p. 12.

[25] *By amendments to the Rulebook on scientific, artistic, i.e. professional fields within educational-scientific, i.e. educational-artistic fields,* Official Gazette of the RS, No. 24 of March 11, 2020, military and security sciences have been recognized and classified within the educational-scientific field of social sciences and humanities.

[26] *The Strategy of Defence of the Republic of Serbia*, Official Gazette of the RS No. 94/2019.

building and preserving peace in the region and the world; 3. support to civilian authorities in combating security threats. However, it has already been mentioned that the Regulation of the Geo-Topographic Support fails to define more precisely the role of the geo-topographic support in the missions and tasks of the Serbian Armed Forces, and such definition primarily refers to the contents of the geo-topo-graphic support. Considering the conceptual definition mentioned in the Regulation of the Geo-Topographic Support, the contents of the geo-topographic support include: 1. the collection of geo-topographic data; 2. the processing of geo-topographic data; 3. the presentation of geo-topographic data; and 4. the use of the geo-topographic materials and geographic information systems in the Serbian Armed Forces ope-rations.[27]

The Regulation of the Geo-Topographic Support stipulates that *the collection of geo-topographic data* is conducted through two main methods of collection: primary and secondary one. The primary method is close to the traditional view of collecting geospatial data for the purpose of making the geo-topographic materials, which means that data are collected by direct measurements of physical quantities. On the other hand, the secondary method of collecting geo-topographic data implies the use of cartographic sources, various statistical data, address registers, city plans, cada-stral data, geodetic, gravimetric, geophysical measurements, etc.[28] The primary method of data collection is, of course, done by the Military Geographical Institute whereas the secondary method of data collection involves the use of the already existing geospatial data that others have.

The processing of geo-topographic data is conducted after the collection of geospatial data for the purpose of producing the geotopographic materials and, above all, supplementing and updating the central geo-topographic database by photogrammetric restitution, remote detection and cartographic processing. The special value of this database is that it is structured in such a way that it serves to generate the other geo-topographic materials. Therefore, *the presentation of geo-topographic data* has been singled out as a special content of the geo-topographic support because geo-topographic data can be presented, i.e. displayed in analogue or digital form on the geo-topographic materials.

However, the collection of geo-topographic data implies the collection of data only for the geospace of the Republic of Serbia, i.e. for the first and third mission of the Serbian Armed Forces. It is not specified how and in what way the geo-topographic support would be carried out in the second mission of the Serbian Armed Forces, i.e. by participating in building and maintaining peace in the region and the world. With such an approach, the Serbian Armed Forces are directed to conduct the geo-topographic support exclusively through international military cooperation with partner armed forces or countries that lead multinational operations.

The use of the geo-topographic materials and the Geographic Information System in the operations of the Serbian Armed Forces, as one of the contents of the geo-topographic support, should enable obtaining the necessary information on space through the geo-topographic materials and GIS. The Geographic Information System involves

[27] Pravilo geotopografskog obezbeđenja, 2015, p. 13.

[28] Ibid., p. 14.

entering data, creating a database, analysing data and providing data for spatial information.[29] It is used for orientation and navigation, terrain analysis, visualization of the operational environment, selection of targets and preparation of elements for fire. At the same time, this means that by linking intelligence databases to the geographic information system, the command is provided with geographic information support.

The establishment of digital cartography has enabled the formation of a geo-spatial database and the creation of GIS as an important segment of the geo-topo-graphic support. In this regard, if we define GIS as "a means of work, then we can say that GIS is a powerful set of tools for collecting, storing, searching when needed, transforming and displaying real-world geospatial data for specific purposes".[30] The GIS software platform of the Serbian Armed Forces, whose objective is to support the process of operational planning through geospatial analyses and battlefield visualization, has been established on this basis. This means that on the basis of a single geospatial database, branches, services and special units can create their own operational geospatial databases that would be continuously updated for their needs.

However, users in the Serbian Armed Forces are focused only on their user application. For the geo-topographic support, it is necessary to create resources that will enable access to services (web services) that are available within the National Spatial Data Infrastructure (NSDI). The service approach provides a great number of advantages: users have a possibility to access various applications, the costs of their own development are reduced, which provides an opportunity for the implementation and use of geospatial data.

The processing of geo-topographic data does not iclude only geometric and graphic data processing, because geospatial data are also determined by topological relations. In addition, the data sources that are pooled are most often from different sources, whether the data have been obtained by the primary or secondary method of collecting geospatial data. This leads to the problems in the redundancy and inconsistency of geo-topographic data. Therefore, it is necessary to define the rules, principles or guidelines that have to or should be followed.

The Principles of the Geo-topographic Support

Considering the principles for the production of the geo-topographic materials, Miroslav Pavlović[31] believes that the main principles of the geo-topographic support are mathematics, simplicity, modernity, selectivity, objectivity and independence. However, taking into account the importance of GIS for the geo-topographic support, as well as the tendency in the distribution and use of geospatial data through services (web) or geoportals, *interoperability* is imposed as one of the key principles of the geo-topographic support that should be followed.

[29] Dragoljub Sekulović, Ljubomir Gigović: *Kartografska vizualizacija podataka o prostoru*, SYM-OP-IS 2009, Zbornik radova, Ivanjica, 2009, p. 118.

[30] Ljubomir Gigović: *Geografski informacioni sistemi,* Univerzitet odbrane, 2010. p. 11.

[31] Miroslav Pavlović: *Geotopografsko obezbeđenje vojske,* ŠONID*,* Beograd, 2002, p. 21.

In a broader sense *interoperability* implies efficient connection of people, data and different systems, primarily due to the development of digital technology and the possibility of exchanging and using data through information and communications systems. Interoperability and standardization are one of the most important topics in the process of collecting, processing and analysing geospatial data. In this sense, "interoperability is the ability of two or more autonomous, heterogeneous and distributed digital components (systems, applications, procedures, or data sets) to communicate and collaborate with each other despite possible differences in languages, context, format or computer platform".[32]

This is particularly important, because in the Republic of Serbia for more than 10 years there has been work on the establishment of NSDI on the basis of web services and geoportals, which is one of the most promising information systems, given the huge opportunities and wide implementation, both for a great circle of users, as well as for the decision-making in the Serbian Armed Forces. Furthermore, opportunities and preconditions have been created for updating geospatial data in a faster and simpler way, as well as modeling digital geospatial data for the military purposes. This implies structuring the NSDI model in the function of the geo-topographic support (Figure 2), which means that continuous exchange of geospatial data within NSDI is enabled in all contents of the geo-topographic support (collection, processing, display of geo-topographic data and the use of the GTM and GIS in the Serbian Armed Forces operations).

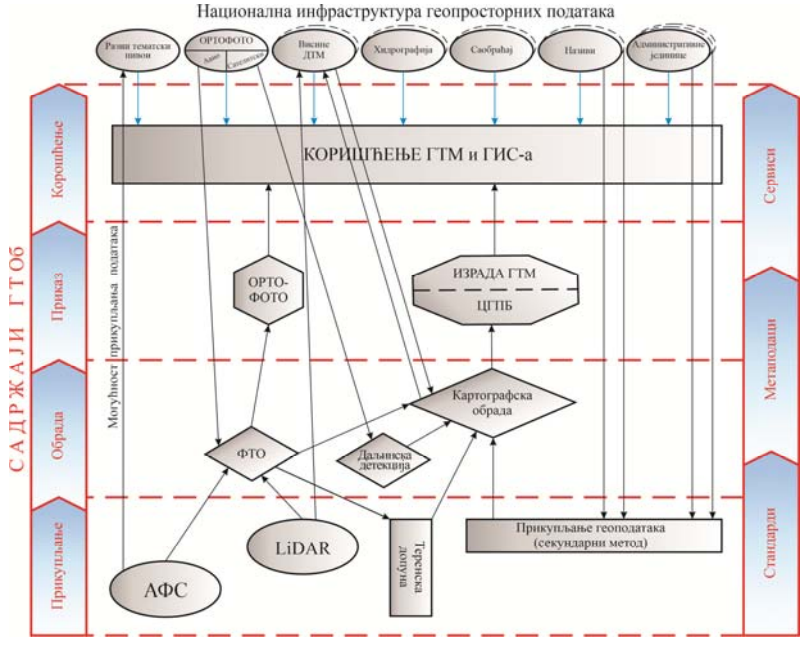

Figure 2 – *The structure of the NSDI model in the function of the geo-topographic support*

[32] Miro Govedarica, Dubravka Sladić, Aleksandra Radulović: *Infrastruktura geoprostornih podataka i geoportali,* FTN, Novi Sad, 2018, p. 47.

The legislative and institutional framework has created opportunities for the exchange and use of geospatial data in the Republic of Serbia for the needs of the geo-topographic support within the NSDI, with the establishment of common standards, metadata and services. In this regard, interoperability should be one of the main principles of the geo-topographic support in order to reduce data processing and the cost of creating the GTM and maintaining the central geospatial database.

The Doctrine of the Serbian Armed Forces considers interoperability as "the ability to conduct effective training, exercises and operations with joint forces of other countries, in joint missions and tasks"[33], which confirms that the provision of geospatial data and the development of the military GIS are done according to international standards. This is particularly important for the second mission of the Serbian Armed Forces.

Conclusion

The paper explains the origin of the concept of the geo-topographic support and its content, and the importance of interoperability has been emphasized. The results of the research should indicate the further development of the concept itself and the re-examination of attitudes and regulations that should enable the establishment of the geo-topographic support and maintaining its stable structure in order to successfully perform the assigned missions and tasks. By defining the basic theoretical provisions related to the geo-topographic support, as a part of the overall support of the Serbian Armed Forces, one of the contents of the military activity, which has its place and role in military operations, is presented. Furthermore, the research of the term of the geo-topographic support has shown that it belongs to the terminology of military sciences. Using comparative historical analysis, it has been noticed that in parallel with the development of technology, particularly geographic information systems, the conceptual definition of the geo-topographic support in military regulations and doctrinal documents has changed.

In order to meet the existing and future requirements, it is necessary to critically consider and harmonize the doctrinal views in this field within the planning of development and modernization of the existing systems, as well as possible changes in the organizational structure for the implementation of the geo-topographic support. Considering the content of the geo-topographic support, it has been noticed that there are certain problems in the doctrinal regulation of the content of the geo-topographic support, especially when it comes to the participation of the Serbian Armed Forces in building and preserving peace in the region and the world.

The development of information and communications technology directs the development of the geo-topographic support towards the establishment of a service-oriented structure for the exchange, distribution and use of geospatial data. In this regard, the National Spatial Data Infrastructure can significantly contribute to the provision of up-to-date and reliable geo-topographic data, in accordance with the needs of the geo-topographic support. This includes the creation of resources that will enable the efficient

[33] *Doktrina operacija Vojske Srbije*, 2012. p. 74.

exchange of geoinformation within the national spatial data infrastructure, as well as the data exchange with partner armed forces and organizations when participating in building and maintaining peace in the region and the world. Due to the establishment of operational geospatial databases, it is necessary to pay special attention to interoperability, as one of the key principles of the geo-topographic support.

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[2] Boban Milojković, Saša Milojević: *Neki aspekti geotopografskog obezbeđenja upotreba policijskih jedinica posebne namene*, International Journal of Disaster Risk Management, Beograd, 2013, pp. 1-11.

[3] Božidar Forca: *Doktrinarni aspekt priprema upotrebe i obezbeđenja Vojske Srbije,* Novi glasnik 3/09, Beograd, 2009, pp. 5-32.

[4] *Doktrina Vojske Srbije*, Medija centar „Odbrana", Beograd, 2010.

[5] *Doktrina operacija Vojske Srbije*, Medija centar „Odbrana", Beograd, 2012.

[6] Dragoljub Sekulović, Vangel Milkovski: *Vojnogeografska procena ratišta*, Vojno delo br. 1/05, Beograd, 2005, pp. 94-112.

[7] Dragoljub Sekulović, Ljubomir Gigović: *Geografski informacioni sistemi u komandnim i kontrolnik informacionim sistemima*, SYM-OP-IS 2008, Zbornik radova, Soko Banja, 2008, pp. 145-148.

[8] Dragoljub Sekulović, Ljubomir Gigović: *Kartografska vizualizacija podataka o prostoru*, SYM-OP-IS 2009, Zbornik radova, Ivanjica, 2009, pp. 117-120.

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Paper on the Conceptual Definition of the Geo-Topographic Support

Defining the fundamental theoretical provisions on the geo-topographic support as a part of the comprehensive support of the Serbian Armed Forces represents one of the military activities' elements that have its place and role in the military operations. The geo-topographic support is the term that belongs to the terminology of military science. The conceptual definition of the geo-topographic support has been examined using comparative historical method within the context of previous and current legislation, indicating that the achievements of the information and communications technology have impacted not merely the development of the geographic information systems, but also the direct definition of this term. The conceptual elaboration of the geo-topographic support started in the 1970s, but obtained its first conceptual definition in the last decade of the 20th century in some doctrinal documents. The analysis of the conceptual definition of the geo-topographic support indicates that the view and definition of the geo-topographic support in doctrinal documents run in parallel with the development of technology, the GIS technology in particular.

The research has also covered the comparison with similar and related terms, aimed at determining similarities or differences. The formal-logical analysis has presented the content of the geo-topographic support, which includes: geo-topographic data acquisition; geo-topographic data processing; geo-topographic data presentation; the use of geo-topographic materials and geographic information systems in the operations of the Serbian Armed Forces. The continuous development of the geographic information systems towards the establishment of a service-based approach to the geospatial data distribution and use will have a direct impact on the future finalizing of the geo-topographic support content. This type of process is accompanied by the establishment of the geo-topographic supportprinciples, which should provide for the development and maintenance of its stable structure towards successful execution of the missions and assignments of the Serbian Armed Forces. For that purpose, *interoperability* is the key principle that assumes efficient linking of humans, data and various systems, firstly towards the development of the digital technology and the capacities for data sharing and use through the information-communications systems.

The research points out that doctrinal documents lack the clear definition of the holders of the individual geo-topographic support content and there is the lack of the doctrinal regulation of the geo-topographic support in all missions and tasks of the Serbian Armed Forces. The results of the research indicate that the further elaboration of doctrinal definition of the geo-topographic support should continue, along with the review of the standpoints and regulations that should provide for the development of the geo-topographic support and maintenance of its stable structure towards successful performance of the assigned missions and tasks.

Key words: *geo-topographic support, operations, geographic information system, geo-information, interoperability*