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**Author's executive summary of the Ph.D. thesis of**

**IMPORTANT LESSONS LEARNED  
FROM THE HISTORY OF THE  
HUNGARIAN DEFENCE FORCES  
AMMUNITION AND ARMAMENT SUPPORT.**

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## THE AIM AND SUMMARY OF MY RESEARCH

The majority of my military career was spent (27 years out of 37 years of service) in various positions of providing support to weapons' systems. The remainders of my service years, approximately ten years, were spent in assignments providing service support to military vehicles and logistics. Based on my career experience, I came to the conclusion that in order to be successful, a key ingredient of success is to know and understand the basics and to have the requisite subject matter expertise. This is my impetus for the continued research into the history of the profession. In this endeavor, I was assisted by the leadership of the Hungarian Defence Forces, with the implementation of designated commemorative service days in the Armed Forces. The Hungarian Forces Chief of the Defence Staff decreed 01 August as Armament Technical Services Day.

The designation of commemorative Services days gave me the initial impetus to start my historical research. At the beginning, the aim of my research was to study Hungarian Military history, and to prepare a draft version of the armament and ammunition support services' history. My intentions were to provide an overview for all those currently serving in these services, as well as for the generations to come, and simply for all those who are interested to find out about the efforts of this service branch of the military over the centuries, to ensure the provision of serviceable weapons and ammunition required to conduct battles and military operations.

The summary of my research work appeared in my 1994 book entitled "The History of Armaments and Ammunition Services", published by the Hungarian Forces' Weapons Technical Services Directorate. Continuing my research, in 1997 I published a second book, with a considerably increased and improved content on the same theme, entitled: "The History of Armaments and Ammunition Services In Hungary, from the Birth of the Nation to Present". In addition, I have published my research results in several scientific papers.

During my research, I came to the realization that, many authors addressing this topic have chosen to describe the technical evolution of armaments and ammunition in great detail, but paid only minimal attention to, or completely overlooked the issues dealing with the provision of armaments and ammunitions support services.

From my perspective, the presence of arms and ammunition branch today amounts to a historical proof that, armament support services first came into existence with the introduction of firearms. The armament and ammunition support services started from humble beginnings with the line of blacksmiths, arms makers, ammunition suppliers, and evolved with time through the artillery branch. Its development was greatly aided, and eventual succession as an independent branch of the armed services with the improvement and constant proliferation of arms. The armament and ammunition support services (provision of arms and ammunition) are the essential elements of war fighting capability, and forms an integral sub-element of logistics services. The mandate of the armament and ammunition support services, within the larger concept of logistic support is the procurement, storage and maintenance of ammunition delivery platforms, provision of initial support and re-supply of military units in peace and wartime.

**I have set the following scientific goals for my dissertation:**

- to examine the armament and ammunition support services in historical context with the view of investigating the relationship between domestic production and provision of supplies;
- based on events in our national history, to analyze the adequacy of arms and ammunition supplies, their composition, and their delivery to the required consumption points;
- based on military historical evidence, examine the concept, organizational development, organizational transformations, or organizational structural consistency over period of time, and in phases of history - as it pertains to the arms and ammunition support services;
- investigate the effects of significant historical changes on the arms and ammunition support services;
- examine the effects on the support services activities with specific focus on the quality of services provided, as a resulting from being subjected to integrated transformational processes during the past decades.

The specific goal of my research is to provide concrete recommendations, which will ensure the successful transition of the armament and ammunition support services from its current

position, as a system of service support, with the capability to provide the best possible services to the armed forces in support of their current and future mandate.

My main goal is to acquaint myself with, analyze, examine, induct, deduct, and through systematic and detailed review of the system, be able to map the historical relevance and causes of evolution in the armament and ammunition support services.

### **The existing factors during the writing of my dissertation**

Following the 2006 general election, the government put in motion one of its campaign promises to finalize the ongoing military transformation. As a result, the Government issued a directive to the military 2118/2006 (VI 30) in an attempt to fulfill this undertaking, which resulted in the disbandment of traditional Hungarian Forces units, strategic level headquarter elements, military equipment and supply services branches' directorates. In some cases, the component elements of these directorates with their mandates were integrated into the newly formed Ministry of Defence Logistics and Development Agency, and in part into the Joint Forces Headquarters' organizational mandate. This change was implemented to clearly delineate between the areas of responsibility for consumer and production logistics. The overall result from the Government directive was that the support services branches, but more specifically the MOD Armaments and Ammunition Support Services Branch was disbanded.

Based on my years of research work in this area, I feel obliged to provide a suitable historical account for posterity of the significant achievements and dedicated work of my colleagues in support of the MOD Armaments and Ammunition Support Services Branch and its organizational predecessors.

### **Assumptions and Limitations**

In reviewing the historical time periods, I have kept the in vogue nomenclature of the services and organization of the time, to maintain historical authenticity.

I will conclude my examination of the topic, with a detailed review of the historic Hungarian Forces' activities, focusing on provision of armaments and ammunition. It is not

my intention to detail the evolution of different weapon delivery platforms; others have already done this.

The initial historical period – from the birth of the Nation to the XIX century, will only be addressed in a quick overview, only critical elements necessary for the understanding of relevant cause and effect relationships will be detailed.

My analysis will be based on historical evidence, taken from the works of well-known authors in the form of quotations, will provide the relevance to the subject matter discussed. The chronologically listed time periods will provide true documentary evidence on the transformation process. The thus revealed mosaic of evidence will clarify the supply process, the critical periods of the organizational transformation, and the historical lessons learnt.

I have drawn the supporting details from my aforementioned, earlier published book (1997), where the supporting annexes contain the tables, concepts and other relevant information. Because of its extensive volume, it is not possible to include this material in my dissertation.

My research period terminates at the end of the 1990s. The transformation and renaming of the material-technical support services into logistics support services will serve as the concluding period for my analysis.

## **SUMMARY OF RESEARCH WORK AND CONSEQUENT DEDUCTIONS**

In reviewing the history of arms and ammunition support services, it is readily evident that it was a long, arduous road of evolution from the simple blacksmiths at the time of the birth of the Nation to our present time of material-technical (logistics) support services. In examining the historical evidence we can conclude that, what we understand to be the armament and ammunition support services branch came into existence and started its evolution with the introduction of firearms, especially with the appearance of artillery ammunition. The first armaments experts appeared/came from the ranks of artillery personnel and were themselves by trade artillery persons.

The evolution of arms, but first and foremost the provision of ammunition made served as the mother of necessity to create the armament and ammunition support services as an independent Service branch. As demand for supply of ammunition became significant, it became necessary to introduce a large-scale production, and with it came the organization responsible for the provision of large-scale ammunition stocks.

The technical support services portion of the armaments and ammunition support services came into existence with the evolution and sophistication of arms. The more complex the weapons system became, the more expertise was needed to maintain the weapons. As the number of complex weapons increased, so did the number of experts required to maintain the existing inventories in service.

The historical facts provide many useful deductions. Based on my research, the most significant deductions are as follows:

- historical events prove the point that the defense of the country requires domestic production; our national history provides ample examples of patriotic war efforts being supported with national production created in the last minute, and with only minimal capacity; in many cases this came to be too late to be of any consequence;

- our military forces were constantly suffering from inadequate funding; in most historical periods they did not have the financial resources to provide advanced weaponry, or to have the necessary organization to provide requisite support; against all odds, our predecessors relied on their ingenuity, enthusiasm to improvise creating solutions to resolve their disadvantage;

- over the period of time, during force generation for our military, there were long periods, when the make-up of the military, its equipment and numbers were not determined by free will of the Nation, but were dictated by a foreign power;

- in many tragic historical events, the cause of the tragedy was not the supply and provisions of arms to the forces, despite being ill equipped. In the provision of ammunition services only transportation can be considered as a negative factor, when in cases of cursory follow-up review of events erroneously concluded that ammunition shortage was to be

blamed for the failure of action, when in fact a detailed review of the events proved that there was adequate supply of ammunition, but because of transportation difficulties the ammunition did not reach the areas where it was most needed;

- in examining some of the war actions, we can find many examples which are quite appropriate for our times as well – such as composition of ammunition stocks, ammunition stocks quantities, personal weapons, the number of logistic service support units, organizational structure, supply services methods, procedures and resolving necessary requirement issues, etc.

- the legal contexts governing weapons and ammunition were developed over the past centuries. The historical experience and factors gained over this time period have to be seriously considered when contemplating modification, changes to the supply system, otherwise disregard of these factors can create tremendous confusion;

- in analyzing the operation of the armament and ammunition support services, it is clearly evident that a smooth operating process is only possible if there is a very close link/relationship in existence between the headquarters and executing elements. The failures of the integration attempts of the '50s and '60s can be partly be attributed to the weakening of this link;

- there is ample historical proof to support the contention that provision of services only work well if the personnel in key leadership positions possess the requisite expertise in the field and have the personal experience;

- it is considered the most essential requirement to any functioning military to have effective armaments and ammunition support services; however, it is evident, that by the end of many conflicts, only ammunition supply, foods services, fuels, and medical services were functioning – to a degree;

- historical experience has shown us, that basic laws of conducting warfare (such as armaments and ammunition support services) cannot be altered by political will – without serious consequences.

- the integration of materiel-technical services into the logistics services can be traced back in history to armaments' evolution and advancements in weapons technology. However, the same historical evidence is not there to rationalize the separation of consumer and production logistics, or the disbandment of traditional services branches;

- during our history, our military have found itself many times in the same dire situation as we are witnessing today, or even in worse predicaments. There were several solutions attempted to remedy this type of situation in the past; the single most successful attempt of all – which could possibly be used today was the following: a realistic assessment and appreciation of the situation, to rid the organization of useless, surplus materiel/equipment; retain only what is necessary to function in the future, or material that is absolutely indispensable; and use the time required for research and development/ few or perhaps more years, to train and prepare the personnel establishment aggressively for their future task. This is how we could create the conditions for a more modern and effective military force, which will meet the requirements of its time (this process is already under way).

Based on the historical review, I would be remiss not to point out, that we ought not to forget, but be familiar with our past, the deeds of our predecessors, their mistakes and their achievements.

The armaments and ammunition support services branch's experts clearly maintain a vision of their mandate – to provide the best possible armaments and ammunition support services in the form of well functioning weapons, weapon systems to the fighting elements of the military – regardless of the name given to their organization at any one period in time. They will not spare any effort in the achievement of the above stated aim; they will endeavor to constantly improve their knowledge and expertise of their trade to be capable of meeting all new challenges.

#### **I CONSIDER THE FOLLOWING TO NEW SCIENTIFIC EVIDENCE:**

1. I was the first person to study the armament and ammunition support services history, which included periodic as well as collective historic period overview and evaluation of the system of service. I came to the conclusion that, the defense of the country, it was



necessary in all cases to have domestic arms and ammunition production, with specific relevance to the procurement of large-scale equipment and materiel.

2. I have proven through detailed analysis of tragic events in our history that, inadequate armament and ammunition support can be caused by two major factors: firstly, the availability of required materiel for the manufacture and production of armaments and ammunition, and secondly the transportation of required materiel in the required time and place. Failure to meet either one of the foregoing factors can have critical mission failure and tragic consequences.

3. After a thorough and detailed examination of our war experiences, I have come to the conclusion that, the critical elements of the principles of armaments and ammunition support services remain constant throughout the ages of history, especially the combination of ammunition stocks, the quantity of ammunition stocks, personal weapons, the make-up and number of support services organizations; the method of provisioning and supply, procedural activities as well as satisfying un-forecasted requirements.

4. I have shown, that the domestic procedural practices of the armaments and ammunitions support services developed over the centuries cannot be overlooked when new supply procedures are contemplated. On the contrary, the past practices must be strictly observed, in order to avoid any potential serious consequences caused by the implementation of new and untried methods.

5. Examining the difficult periods in our history, when our military forces were facing very difficult times, I have deduced the most successful resolutions found in those difficult times to remedy the situation with focused approach. More specifically: the organization must rid itself from surplus, unserviceable equipment (“only keep those that have some use in the future, or are considered indispensable!”); the time required for the development of new technology, must be used to intensively train personnel establishment. This is how the cadre of personnel can be prepared for the demands of a more modern and sophisticated age for a more effective military force.

6. The historical review and evaluation of our national armaments and ammunition support services’ activities – although the organization nomenclature may have been changed

over periods of time – and in recognition of the errors committed and the deeds of our predecessors, benefiting from their experiences, can be summarized in a very general way as follows: for the entirety of the service including its personnel, the sole reasons for their existence and continued existence is to provide the military forces with serviceable armaments and ammunition at all times.

**Recommendations and suggestions for implementation:**

I recommend the implementation of the summarized experiences derived from the “History of weapon and ammunition support” on the following areas:

- Developing and restructuring organizations;
- Military education, both for general military training and for specialized logistics training programs;
- Via a widespread publication to promote the military in the society

### III. List of published academic work

1. Technical manual for unit level maintenance organizations for standardized planning, accounting and record keeping. MN 5232 96/1987, pages 13+40
2. The review of the current state of weapons and ammunition safekeeping. Új Honvédségi Szemle, 1992/3. , pages 72-77.
3. Maintenance organizations in our days. Szárazföldi Csapatok, 1992/1., pages 82-91.
4. Armaments support for special ops units. Szárazföldi Csapatok, 1992/2., pages 99-104.
5. About Logistics – once again. Új Honvédségi Szemle, 1992/7., pages 116-118.
6. Officer positions at the Maintenance Branch - in relation to a suggestion. Szárazföldi Csapatok, 1992/3. pages 138-143.
7. Material and technical support for a mobile task force. Új Honvédségi Szemle, 1992/10. pages 83-85.
8. The integration of armaments, maintenance and supply branches. Hadtudomány, 1992/3-4. pages 60-69.
9. Repair organizations nowadays. Új Honvédségi Szemle, 1992/11. pages 74-77.
10. Briefly about the material and maintenance support for a mobile task force. Szárazföldi Csapatok, 1992/4. pages 16-19.
11. The recent changes in maintenance support tasks. Új Honvédségi Szemle, 1993/2. pages 43-52.
12. The options for development of the different armaments maintenance equipment and procedures at the Land Forces. Ph.D. thesis. 183 pages, Ref No.:163/1993/ATF. ZMKA, 1993.
13. Material and maintenance support for crisis management operations. Hadtudomány, 1993/3. pages 70-80.
14. Professional development options for weapons tech officers, NCOs and civil servants. Új Honvédségi Szemle, 1993/11. pages 47-56.
15. Lessons learned and the way ahead for the integration of the technical services. Szárazföldi Csapatok, 1993/4., pages 59-72.
16. Lessons learned and the way ahead for the integration of the technical services. Katonai Logisztika, 1994/1. pages 80-107.
17. Recommendation for the modernization of the weapon systems maintenance. Katonai Logisztika, 1994/2. pages 93-130.
18. Recommendation for the modernization of the weapon systems maintenance. Hadtudományi Tájékoztató 1994/6. pages 210-239.
19. Forum for discussions about the possible options and tasks of the unit level maintenance system. Szárazföldi Csapatok, 1994/2. pages 149-157.
20. Forum for discussions about the possible options and tasks of the unit level maintenance system. Katonai Logisztika 1994/4. pages 87-97.
21. The history of armaments and ammunition support. Publication of the HDF Armament and Ammunition Support Services Branch, 1994. 189.
22. Tasks and options for repairs and maintenance on the unit level (discussion forum). Hadtudomány, 1994/3. pages 122- 126.

23. Recent issues concerning the deployment of maintenance units. *Katonai Logisztika*, 1994/3. pages 253- 266.
24. The recent experiences of the Land Forces Command and subordinated units concerning the training and preparedness of armament technical officers. *Akadémiai Értesítő. Haditechnikai Különszám. XXXVII. issue.* 1994. pages 89-98.
25. The planning and execution of professional training for logistics personnel. *Szárazföldi Csapatok*, 1994/3-4. pages 105-110.
26. Remarks to the publication themed “Recovery logistics”. *Katonai Logisztika*, 1995/1. pages 54-57.
27. The tasks of the Land Forces Command Logistics Branch in crisis response operations. *Katonai Logisztika*, 1995/1. pages 171-185.
28. Some recent issues of military logistics. *Katonai Logisztika*, 1995/2. pages 32-46.
29. Prospects of logistics cooperation between the Military District (Mech Division) and other governmental organizations (e.g. police, border guards and area defence forces). *Katonai Logisztika*, 1995/2. pages 86-116.
30. The effects of the new military laws on technical support. *Új Honvédség Szemle*, 1996/1. pages 93-101.
31. The new armaments maintenance system. *Új Honvédségi Szemle*, 1996/3. pages 64-75.
32. The main events of the history of armaments and ammunition support in reflect of recent issues. *Katonai Logisztika*, 1996/3. pages 219-232.
33. Logistics support for a battalion battle group. *Új Honvédségi Szemle*, 1996/10. pages 54-63.
34. Ideas about military reform. *Katonai Logisztika*, 1996/4. pages 67-73.
35. The options for modernization of the armaments maintenance system. Publication of the HDF Armament and Ammunition Support Services Branch., 1996. 50.
36. The history of armaments and ammunition support in Hungary from the first settlements of Hungarians till nowadays. A publication of the HDF Armament and Ammunition Support Services Branch ,1997.
37. Renew the knowledge. International NCO conference. 1997. pages 87-88.
38. Renew the knowledge. International Non-commissioned officers Conference. 1997. pages 87-88.
39. Material-technical support (logistics support) for a battalion battle group. *Katonai Logisztika*, 1997/1. pages 54-69.
40. Mobile repair shop (Artillery workshop) *Katonai Logisztika*, 1997/2. pages 239-245.
41. The BTR armoured fighting vehicle family. *Katonai Logisztika*, 1997/3. pages 79-91.
42. The development tendencies of infantry arms and ammunitions. *Honvédorvos*. 1997/3. pages 155-161.
43. The BTR armoured fighting vehicle family. *Haditechnika*, 1997/4. pages 29-32.
44. The different options for the armaments maintenance system modernization -part I. *Katonai Logisztika*, 1997/4. pages 103-123.
45. The different options for the armaments maintenance system modernization –part II. *Katonai Logisztika*, 1998/1. pages 29-57.

46. Four years of national defense 1994 – 1998. . Zrínyi Kiadó, Budapest, 1998. Outwork to the chapters “Reorganization of the Hungarian Defense Forces”, “The Hungarian Forces at nowadays” “Four years of military budget”.
47. The examination of various issues concerning the storage and transportation of ammunition to develop a NATO compatible logistics system. Hadtudományi Tájékoztató, 1998/2. pages 59-81.
48. Contributions to the History of the Hungarian military industry. (1948-1997). Katonai Logisztika, 1998/2. pages 227-241.
49. Armaments conference. Katonai Logisztika, 1998/2. pages 242-245.
50. Armament and ammunition support issues in the 1848-49 uprising/ war of independence. Katonai Logisztika, 1998/3. pages 221-236.
51. Armaments conference. Hadtudomány, 1998/3. pages 125-126.
52. German – Hungarian logistics cooperation. Katonai Logisztika, 1998/4. pages 238-243.
53. Principles of the new maintenance support system. Nemzetvédelmi Egyetemi Közlemények, 2000/1. pages 217-232. Co-author: Rácz János
54. The new armaments maintenance system. Katonai Logisztika, 2000/3. pages 50-70.
55. The status of the HDF armaments, plans to keep them further maintained. Katonai Logisztika, 2000/4. pages 55-69.
56. Professional development and training for the EME branch in the Canadian Defence Forces. Katonai Logisztika, 2001/2. pages 144-164. Co- authors: Dr. Károly Turcsányi, János Lengyel.
57. Material support in the Canadian Defence Forces. (Knowledge gained from visit) Katonai Logisztika, 2001/2. pages 221-246.
58. The training and education system of the Canadian Defence Forces for EME officers. Hadtudomány, 2001/4. pages 65-74. . Co-authors: Dr. Károly Turcsányi, János Lengyel.
59. Modernization of the maintenance support system. Katonai Logisztika, 2001/4. pages 38-55.
60. The status of the HDF armaments, options and trends for development. Katonai Logisztika, 2002/1. pages 149-178. .
61. Logistics process modelling and information technology. Katonai Logisztika, 2002/1. pages 219-232. .
62. The future plan for the HDF and the daily routines. Védelmi beszerzés, 2003. 24-29.
63. Logistics in year 2004. Katonai Logisztika, 2004/1. pages 3-7. .
64. The developments of the Hungarian military logistics system in reflect of the recent military academic research. Hadtudományi Tájékoztató, 2004/1. pages 59-66. .
65. Review of year 2004, expectations for 2005. Katonai Logisztika, 2006/1. pages 3-6.
66. Logistics and environmental protection. HDF Environmental Protection Conference 08 June 2006. Publication of the HDF JLSC, pages 32-36.
67. Logistics support for crisis response operations. The present and the future of the Hungarian Defence Forces in reflection with Crisis Response operations-Conference. Új Honvédségi Szemle, 2007/2, page 92.

#### **IV. Professional and Scientific Curriculum Vitae**

##### Education:

In 1970 I have graduated at the Sándor Latinka Technical Engineering High School as a qualified technician.

In 1976 I obtained my Masters degree in artillery engineering at the Artillery Engineering University in Penza.

In 1993 I have successfully defended my Ph.D. thesis at the Miklós Zrínyi Military Academy.

In 1995 I have successfully completed the General Staff College course at the Miklós Zrínyi Military Academy.

In 2000 I completed an Intermediate state exam in English language.

##### Military Career:

- 1976-1978 Platoon commander, Deputy company commander - Divisional weapon repair shop, Marcali
- 1978-1995 Engineer officer, Section head, Deputy head of Armament and Ammunition Support Services Branch - 5<sup>th</sup> Army Command Staff, Székesfehérvár ;
- 1995-1997 Division head- HDF Armament and Ammunition Support Services Branch, Budapest;
- 1997-2000 Deputy Branch head- HDF Technical Services - Budapest;
- 2000-2002 HDF Chief of Maintenance;
- 2002-2007 Commander, HDF Joint Logistics and Support Command

##### Promotions:

- |                    |       |
|--------------------|-------|
| First Lieutenant   | 1976, |
| Captain            | 1981, |
| Major              | 1985, |
| Lieutenant Colonel | 1990, |
| Colonel            | 1995, |
| Brigadier General  | 2002, |
| Major General      | 2003, |

Academic work:

I have started my academic work in 1981. Ever since then I have published several studies in different areas for e.g.: technical support, the deployment of maintenance organizations, material supply, and different issues in the work of Weapons technical and Maintenance Branches.

In the past years (since 1991) I have participated in several different academic competitions organized by the Hungarian Association of Military Science, The New Defence Review and the HDF Armament and Ammunition Support Services Branch and I have been awarded 3 times second and 3 times third prize as well as I have been rewarded 2 times by the HDF Armament and Ammunition Support Services Branch.

Up to now I have published 67 studies in various military publications.

At 28 Sept 1993 I have successfully defended my Ph.D thesis at the Miklos Zrinyi Military Academy in the area of “ The options for development of the different armament maintenance equipment and procedures at the Land Forces.”

After a lengthy research I have elaborated the History of the armament and ammunition support. This study was first published by the HDF Weapons Technical Service in 1994 as a branch publication. In the period of 1994-1997 I have revised and amended this study and it was re-published in 1997.

I am currently a member of various academic organizations where I regularly perform presentations in various topics.

Budapest, 09 July, 2007.

/Dr. Gáspár Tibor/