

ZRÍNYI MIKLÓS NATIONAL DEFENCE UNIVERSITY
Doctoral Committee

by **Lieutenant Colonel Szabolcs Lorinczy (Eng.)**

**IMPROVEMENT OF THE HUNGARIAN AIR FORCE WITH THE
ESTABLISHING OF AIR TO AIR REFUEL CAPABILITY**

Author's words to the PhD thesis

Budapest
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**IMPROVEMENT OF THE HUNGARIAN AIR FORCE WITH THE
ESTABLISHING OF AIR TO AIR REFUEL CAPABILITY**

Scientific Consultant: (Eng.) Dr. Lieutenant Colonel Zoltán Krajnc

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*“Progress is a nice word. But change is
its motivator.”*

(Robert Kennedy)

INTRODUCTION

Basic changes have been taking place in the security circumstances of our planet after the II. World War. In the era of cold war the need of air to air refueling capability for the long range and strategic strike forces emerged. The reason is very simple. Without transport planes delivering soldiers, weapons, trucks, food, fuel, communications equipment, and many other things to a war theatre, a military's ability to fight anywhere on Earth is compromised. CRO activities encompass a broad range of military operations and support a variety of purposes including supporting national objectives, deterring war, supporting PSO, maintaining national influence and supporting the civil power. These objectives are achieved by providing military forces to accomplish a wide range of missions, military operations other than war fighting (MOOTW). CRO tasks can take place in peace through conflict to post-conflict. Air operations will sometimes play a key role. To achieve all of the above mentioned goals, if the AAR¹ is not provided at an appropriate level, those goals would not happen.

Air refueling is designed to provide extended range and to increase the combat potential of tactical aircraft. It permits the introduction of fighter, electronic warfare, reconnaissance, and other aircraft into worldwide theatre operations within a matter of hours. In addition to improving range of tactical aircraft, it is also cost effective. By reducing the number of aircraft needed to maintain a combat air patrol (CAP), it reduces the number of maintenance personnel needed as well as the amount of time aircraft spend on the ground. Air refueling missions require added emphasis on situational awareness and flexibility.

The criteria that NATO has to be able to interfere at any part of the world emphasizes the importance of AAR as a special field. The importance of the Airlift Operations was one of

¹ Air to Air Refueling - AAR

the „hot spot” during the meeting of NATO Defense Ministers in Riga Summit in 2006. (27 November - Remarks by NATO Secretary General, Jaap de Hoop Scheffer at the demonstration of C-17 Strategic Airlift Capability –). They agreed that NATO must improve its Airlift capability package in the near future. „*The Alliance recognized this need four years ago at our Summit in Prague, and we committed then to increase our strategic airlift capability.*”² „.

Since the chances of military conflicts were replaced to other areas (such as The Balkan, the Caucasus and the Middle East region), the Alliance and Hungary too has to catch up with the occurring changes. Hungary has to cooperate with the Alliance since She can't be considered as a middle power not even in economic and military aspect. We have to do everything to meet the agreed requirements within the frame of NATO even if it means to keep just a single formation in the air, out of tactical range. Hungary has accepted these responsibilities when signed the chapter of collective defense. This determines the duties for Hungary, for the Hungarian Forces including the inter operability of the Air Force as well. The development of armed forces and the air force is inevitable in the mirror of security challenges. The evaluation of the Hungarian Air Force is influenced by the fact how it can adopt the NATO regulations in the framework of the Alliance. Unfortunately AAR capability was neglected although we can't fulfill the requirements of the Alliance completely without possessing this ability.

This was the reason I started my research within the Hungarian Air Force AAR establishment. Furthermore this has led to the analysis and elaboration of the professional recommendations.

HYPOTHESIS

According to my opinion it is important to create and maintain the ability of AAR especially due to our participation in operations abroad. Providing the sources is possible within the frame of nation however it is the least realistic. If only NATO provides the financial needs it contradicts the basic concept of the Alliance, so I believe the healthy share of the financial sources between Hungary and NATO would make AAR possible. The sources for the development of the armed forces are limited so we can't count on the national role. This dissertation is not made for achieve financial solutions of establishing the AAR capability of Hungary, but to provide recommendations to how to establish the doctrinal

² Riga Summit in 2006

basics to make my Air Force more capable and more accurate.

RESEARCH OBJECTIVES

In this dissertation, I have set the following objectives of research:

1. The research of AAR position, and objectives in the systems of national security strategy, in the national defense strategy and the doctrines which determine the armed forces.
2. I unified the main determines of AAR.
3. Research of historical background of AAR and analyses of the AAR system according to the previous war experiences.
4. I analyzed the NATO and Russian AAR systems, compared different AAR systems and the way of development for the future.
5. I synthesized the future and new type of AAR methods principles.
6. The possibility of the Hungarian Air Force integration into NATO operations from the AAR perspective.
7. I provided proposals to establish the Hungarian AAR capability.

Achieving my scientific goals, I have used the common and specific scientific research methods. Concerning the common sense research methods I have used the following methods: deduction, induction, critical adaptation. Concerning the special scientific research I have analyzed the different staff level (key leader training, operational and tactical) trainings and exercises.

RESEARCH METHODS

In order to achieve the research objectives:

1. I have studied the topic-related literature on national and foreign origin, official documents, studies, analysis and publications.
2. I have classified the knowledge obtained. I have researched all related NATO and national Doctrines and Publications.
3. I have participated on the Theatre Air Operation Course, hosted by the United States Air Force, and I have integrated those lectures into my study and publications.

4. I have published partial results of my findings.
5. I have consulted in the National Defense University, different level of Staff, from tactical level to the MoD, strategically level of staffs.
6. I have consulted foreign experts; I have conducted interviews and surveys and drawn my findings.
7. I have presented my findings in professional conventions and challenged the opinions presented by other experts.
8. I have used all my experience what I have learnt during my courses in the USAF and JFC HQ Naples, Italy.
9. I have participated in several conferences and built them into my thesis.

STRUCTURE of my THESIS:

In the INTRODUCTION the short analysis of the security of our country, the scientific problem, with the proof of the choice of topic and it's actuality. the Hypothesis, the goals of the search and the used searching methods are analyzed and demonstrated.

In CHAPTER 1, I have determined the status of Air to Air Refueling in the system of doctrines. Also, I have set in system the determines of the Allied publications concerning Air to Air Refueling, I have made synthesis of all aspects which are determine the planning and logistical support aspects.

In CHAPTER 2 I have provided historical background of AAR , I have analyzed the most important war experiences concerning AAR.

In CHAPTER 3 I have analyzed the methods and AAR systems. I have analyzed those methods and refueling systems which are used by the USAF, as the biggest AAR nation in the world. Furthermore, I have illustrated the significant NATO procedures and also evaluated the AAR capacity of Russia, finally I have demonstrated the UAVs air refueling.

In CHAPTER 4, I have put in system the development of AAR capability of the Hungarian Air Force, which has been determined by the task requirements of NATO, and the aspects of the development of the Hungarian Forces. I have especially focused on the analysis of the JAS-39 GRIPEN aircraft AAR capability within the Hungarian circumstances.

In CHAPTER 5 can be found the major statements, the most important consequences,

predictions, and new scientific results with recommendations.

In the CONCLUSION I have resolved the scientific problem, I have fulfilled the goals of research, the validity of the prediction and I have given suggestions Who and How can use my new scientific results.

NEW SCIENTIFIC FINDINGS

While elaborating the study, I have always kept in mind the Hungarian Defense Forces are in significant transformation in both procedures and means, and issue of structure. All the scientific results achieved give answers to the several contemporary problems and dilemma within the development and use of the Hungarian Defense Forces.

1. I have proven the need of change of paradigm in the system what can influence the way of future of the Hungarian Air Force. With this change of thinking they can make those steps what able to establish AAR capability and furthermore, more operational interoperability under NATO umbrella. Due to the new security challenges, the competent staff must re-evaluate the system of procurement of military equipments and integration into the Hungarian Armed Forces. I have provided the alternatives for financial aspects.

2. I have proven (first) within the framework of the Hungarian Military Science research that the flexibility, time-efficiency and the range of use of the Air Force can be extend significantly with the deployment of the air-refueling systems Because of that we can see clearly that the Hungarian Air Force need these facilities. Meanwhile I made the summarized analysis – in Hungarian language – of the historical and operational experiences of the air-refueling.

3. I analyzed analogically the air-refueling capability of those countries which have a great tradition of air-refueling and the most up-to-date - sometimes experimental methods - of air-refueling. I also comparatively analyzed the subjects and forms of the doctrines regarding the air-refueling in NATO and major NATO countries moreover as a conclusion of this I systematized the major determinants of the air-refueling of the Hungarian national Air Force. After analyzing the Hungarian aspects of these documents I created a prognosis and made some possibly commendations.

4. By comparative analysis on the content, I have proven the most adequate technical aspects to establish the AAR capability for the Hungarian Air Force, also the JAS-39 EBS HU aircraft implementation as a tanker aircraft - highlighting the pioneer way of act of a relatively small country such as Hungary.

PRACTICAL APPLICABILITY OF THE RESEARCH RESULTS AND RECOMMENDATIONS

I recommend employing and applying my thesis for the following:

1. for those specialists who plan, organize and execute the military research and development for the Hungarian Armed Forces, and for those civilian specialists who are involved in the co-operation and for researchers and developers in the civilian field who are participate in the co-operation of military technology development.

2. for those specialists who could benefit and use it as a source for new researches in the field of military technology and it's development.

3. Further researches are suggested for the purchase of AAR containers on the appropriate international conferences of NATO and specialized exhibitions. With this updated information could be collected from potential manufacturers, focusing on the Gripen AAR applicability. After choosing the appropriate body store, the Hungarian subject matter of experts have to be trained in AAR for the domestic operations and interoperability even with experimental or training goals.

4. It could modify the aspect of the Hungarian military flying tradition to a new contemporary accepted and necessary practice. It could contribute to the preparation and self-study of the commanders and the staff at operational –tactical level.

5. This thesis can be used in the military education from the basic, complementary study to PhD level education in the chapter of supporting air operation subject, as well as in the assembling of the topics of NATO air operation lectures. Using this method in the university education system it can help to form the students' broader professional view. It could contribute to the completion of regulations, operational publications, and tactical manuals, guidelines.

6. It could motivate further researches.

LIST OF PUBLICATIONS

1. Lorinczy Szabolcs: Légi utántöltő műveletek végrehajtása (2005, ZMNE Hallgatói közlemények, 9. évf. 1-2. szám 2005/1-2, 150-161.p.)
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2. Lorinczy Szabolcs: A légi utántöltés és a terrorizmus elleni harc kapcsolata, követelményei. (Nemzetvédelmi Egyetemi Közlemények 2006. 3. sz. 176-180.p)
<http://www.zmne.hu/dokisk/hadtud/Lorinczy.pdf>
3. Lorinczy Szabolcs: A légi utántöltés és a terrorizmus elleni harc kapcsolata, követelményei. ZMNE- (Eloadás „A nemzetközi terrorizmus elleni küzdelem időszerű társadalmi, katonai és rendvédelmi kérdései” címu tudományos-szakmai konferencia Budapest, 2005 november.)
4. Some Links Between and Requirements of Air-to-air Refueling and the Fight against Terrorism. Hadtudomány, 2005
<http://zrinyi.zmne.hu/dokisk/hadtud/2007angol.htm>
<http://zrinyi.zmne.hu/dokisk/hadtud/Fight.pdf>
5. Szabolcs Lorinczy: General overview of Air to Air Refueling (AAR), procedures, resources and the importance of AAR capability (2006 Bolyai Szemle XV. évfolyam 2. szám (2006-04-01), 670 ssz.)
http://portal.zmne.hu/download/bjkmk/bsz/bszrepertorium/Bolyai%20szemle_repertorium_1999_2008.pdf
6. Szabolcs Lorinczy: Airlift Transport Operations and its support during Crisis Respond Operations – CRO (2007, Hadmérnök, II. Évfolyam 3. szám - 2007. március)
http://hadmernok.hu/archivum/2007/3/2007_3_tartalom.html
7. Lorinczy Szabolcs: A légi utántöltő műveletek logisztikai háttérének megtervezési kritériumai (2007, Katonai logisztika, 2007/4)
http://www.hm.gov.hu/files/9/9714/2_a_legi_utantoltes_-lorinczy_szabolcs.pdf
8. Szabolcs Lorinczy: Mission planning criterias of air refuel operations (2008, Hadtudományi Szemle, 2008/2)
9. Lorinczy Szabolcs: Az szovjet - orosz légi utántöltés múltja, jelene és jövője (2009, Hadmérnök, III. Évfolyam 4. szám - 2008. december)
http://hadmernok.hu/archivum/2008/4/2008_4_lorinczy.html
10. Lorinczy Szabolcs: Különleges légi utántöltő módszerek (2009, Hadmérnök, IV. Évfolyam 1. szám - 2009. március)
http://hadmernok.hu/2009_1_lorinczy.pdf
11. Szabolcs Lorinczy: Operational aspects of air refuelling (2009, AARMS 2009 IV. negyedév, 8.kötet – 3. szám)

CURRICULUM VITAE

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Place and DoB: Nyíregyháza (Hungary), 11. January 1969.

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Marital status: married (2 sons and a daughter)

GRADUATION: (in Hungary)

1990 Air Weapons Controller (Killián György Air Force Technical College)
2004 Military Leadership Expert Miklós Zrínyi National Defense University

COURSES:

1996 UN Military Observers Course, HUNGARY
1997 ACE – Peacekeeping, NATO SCHOOL, GERMANY
1999 ATC Officer, USA
1999 ATC – OJT, USA
1999-2000 Specialized English, DLI-ELC, USA.
2000 Air Weapons Control, USA
2000 Theater Air Operations Control, USA
2001 Basic Intel, Hungary
2004 Basic CIMIC, HUNGARY.
2005 ECDL, HUNGARY
2005 Operational Planner Course, NATO SHCOOL, GERMANY
2007 Peace Support Operations, NATO SHCOOL, GERMANY

ASSIGNMENT:

1990-1997 Air Weapons Controller–59. Szentgyörgyi Dezso TFW, Kecskemét – HUNGARY
1997-2000 Chief Air Weapons Controller–59. Szentgyörgyi Dezso TFW, Kecskemét – HUNGARY
2000 Chief Air Weapons Controller, CRC–Veszprém - HUNGARY
2001-2005 Analyzer–Military Intelligence Office – Budapest – HUNGARY

INTERNATIONAL EXPERIENCES:

1997–1998 FMPU Shift Leader, MFO-Sinai-Peninsula - EGYPT
2003-2004 G2 Analyzer MSU-SFOR, Sarajevo – BOSNIA-HERCEGOVINA
2005 2009 XO, SO – JFC HQ Naples, JENG PLANS - ITALY.

LANGUAGE SKILLS:

2009 Basic Level State Examination in Russian (complete)
1995 Middle Level State Examination in English (complete)
1998 Advance Level State Examination in English (complete)
1999 OPI–2,5
2000 STANAG 6001 in English: 4.3.3.3.

MEDALS:

1997 Tiszti Szolgálati Jel III. fokozat
1998 MFO Medal
1998 Békefenntartásét Szolgálati Jel (MFO)
2004 SFOR Medal
2004 Békefenntartásét Szolgálati Jel (SFOR)
2009 KFOR Medal
2009 NATO Szolgálati Jel
2007 Tiszti Szolgálati Jel II. fokozat