MIKLÓS ZRÍNYI NATIONAL
DEFENSE UNIVERSITY
Doctoral Council

MAJOR ENGINEER KÁLMÁN DÉNES

PLANNING OF PUBLIC UTILITIES OF TEMPORARY MILITARY CAMPS, WITH ESPECIAL REGARD TO CRISIS MANAGEMENT OPERATIONS AND ENVIRONMENTAL PROTECTION

PhD dissertation author's review

Budapest

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Leader of research:

Prof. dr. László Lukács CSc.
university professor,
candidate of military science

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INTRODUCTION

According to the Home Defense Act, participation in crisis management operations and contribution in the military tasks of anti-terrorism with special troops are ones of the fundamental tasks of the Hungarian Home Defense Forces.

Besides the capabilities necessary for military tasks executed within our national borders, the NATO membership and our participation in different allied operations, for example the Hungarian Engineer Contingent or the Provincial Reconstruction Team in Baghlan, Afghanistan made it necessary to develop a new military force, which is capable to fulfill not only NATO requirements and expectations but multinational ones, too.

Claims to temporary accommodation, camp construction and infrastructure development during the crises management operation, and together with this the public utilities make necessary to establish new organizations, to apply new principles for accommodation.

TOPICALITY AND NOVELTY OF RESEARCH MATTER

Beside the basic tasks of the Hungarian Defense Forces, it has international obligations. Transformation of our international relations, accomplishment of our obligations and acceptances, necessity of cooperation with NATO organizations make it necessary to assure the public utilities required by NATO or Hungarian Defense Forces during a stationary in a temporary military camp.

Therefore, the results of the research should guarantee that during planning, constructing, maintaining military camps and their infrastructure – within this the public utilities – the military force meets the necessary requirements related to the allied and domestic rules.

Due to our NATO membership, new expectations and requirements raised in relation with possible tasks and employment of the Hungarian Defense Forces, which make it essential to review our current principles and if necessary, to modify them.

Hungarian troops participate in international military operations therefore the technology used for public utilities should meet the requirements of allied troops, too.

Recent technical development makes it possible and it has to make it possible, to procure new and modern equipment, devices, machines which should compatible with the allied forces' equipment.

Mission in Afghanistan and experiences gained by IFOR/SFOR Hungarian Engineer Contingent's 6-year-long mission also support topicality and importance of my research topic.

Installing military camp is an engineer task for a long time, but during crisis management operations, it is necessary to use material and technologies to assure the safe and comfortable accommodation for years, and also the respect of the environmental regulations.

It is an essential condition to develop the public utility system of the military camp and its continuous running for the success of the mission.

Nowadays, the Hungarian Defense Forces do not have equipment for clearance and management of rainwater and sewage water.

DRAFTING OF THE SCIENTIFIC PROBLEM

Our tasks originated from our NATO membership, thus the participation in international crises management operations, make it necessary to inspect, analyze and systemize the conditions of the temporary accommodation and supply of forces.

Due to the changes and complexity of the national and international requirements it is unambiguous the necessity of development.

The transformed and renewed Hungarian Defense Forces should be prepared for not only the traditional tasks but for the prevention, management of non-military threats and hazards.

Troops and equipment of the Hungarian Defense Forces has to participate in disaster relief operations in the future, too. During these tasks it is necessary to temporarily accommodate the displaced civilian persons.

In my opinion, the requirements for civilian supply may be greatly differ from the present situation of the public utilities in a military camp.

The water utilities of the military camps have to be managed as an integrated, complex system. In this system the cleared sewage water and the rainwater may serve as an alternative water reserve, because they independent from the external civilian water supply system.

Today the Hungarian Defense Forces do not have modern sewage-water clearing equipment and technology which may be used during temporary accommodation for the all organization.

Because during a crisis management operation both the military and civil public utilities are necessary, the correction of the shortcomings and provision of new equipment are necessary.

The critical elements of the public utilities in a military camp make it necessary to inspection of the hazards and the development of their protection.

RESEARCH PURPOSES

To analyze the current situation and condition of the infrastructure of temporary camp's of the Home Defense Forces. To make proposals for the system of the public utilities of military camps which suitable for the Hungarian troops as well as for the allied troops.

To formulate requirements and development trends of personnel, technical equipment and organizations constructing and maintaining the public utilities in camps,.

To explore the current state and applicability of the public utilities of the military camps, their usage during exercises, disaster relief and crisis management operation abroad.

To certify the urgent necessity of development regarded to the environmental protection. To exploit the effect of public utilities' development to improve the living conditions and to reduce risks.

To examine the safety hazards of the public utilities used in temporary military camps.

To determine the protection tasks necessary for the continuous and undisturbed public utilities.

To determine advantages and disadvantages of supplies, make proposals to their applicability.

Based on these examinations determine the reserve systems necessary to be independent from the civil suppliers.

To make proposals for the usage of cleaned sewage waters and rainwater to save potable water, increase security and maintain environmental protection.

RESEARCH METHODS

To fulfill my research purposes I used the following methods during my research work:

- During same time of my PhD course I continued studies on the field of civil engineering and I used the experiences I gathered for completing my dissertation.
- I worked for different companies as a designer, executor and expert-advisory and I used my observations during confirmation of my scientific results.
- I searched in the libraries of Miklós Zrínyi National Defense University and University of Technical Sciences and Economics, and also the World Wide Web for special articles, dissertations and other scientific papers.
- I studied national and international special literature, issued publications, essays in relation with my topic, as like as results and recommendations of other researchers. I also studied and analyzed provisions of law and resolutions in accordance with my work.
- I participated in different international, national and local conferences, symposiums and lectures of which themes were in connection with my research area. I released articles in standard military magazines and prepared applications.
- I gained different expert and professional supervisor titles[1] and I used them successfully during my executor work.
- I systemized my knowledge and experiences I have raised during my military and engineer carrier, and used them to draw conclusions.
- I consulted with military experts and scientific researchers about my topic, and compared my results with their ideas.

[1] Műszaki ellenőri végzettség és jogosultság mélyépítés és mélyépítési műtárgyak szakterületre; MÜE-M1-18-017-292/2010 névjegyzéki szám
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THE ACHIEVED RESEARCH DESCRIBED BRIEFLY CHAPTER BY CHAPTER

In accordance with the aims my dissertation consists of an introduction, four main chapters and the conclusions that summarize the results of research. At the end you can found a bibliography and appendixes.

In the introduction part I shortly explained the topicality and actuality of the research work. I also introduced my hypothesis and concretized my research topic and my aims.

I also introduced my earlier research work and the structure of this dissertation.

In chapter one I introduced the main tasks of the Hungarian Defense Forces and circumstances of application in crisis management and disaster relief operations.

I introduced the accommodation policy and forms necessary to tasks of Hungarian Defense Forces, and introduced the main principles of infrastructures developed for military camps.

In chapter two I deal with the introduction and detailed analyzes of the public utilities of the military camps.

I introduced the systematic relations of the public utilities of the military camps, with especial regard to the international tasks of the Hungarian Defense Forces and also to the domestic disaster relief tasks.

I introduced the necessary technical equipment, material and technologies necessary to the water management, energy supply and communication and informatics system of a military camp, with especial regard to the environmental protection.

I introduced the solutions that assure the reuse of the cleared sewage water and meet the civil and military and environmental requirements.

In chapter three I examined the classes of public utilities in military camps, the critical elements of these utilities.

I summarized the reasons of utility hazards, the consequences and made proposals to avoid and correct these errors.

In chapter four, in the summary section, I wrote down the main consequences and results of my research. In this chapter I made recommendations for using and employing my results, and I indicated those fields where needs further research or more detailed research.

Bibliography contains the special mentioned literature in details.

My publications' list contains all of my articles and publications related to my research topic.

SUMMARIZED CONCLUSIONS

I determined that the infrastructures necessary for accommodation of the Hungarian troops in crisis management operations and disaster relief operations are differ to the normal engineer support tasks of the military operation.

I drew attention that analyzes of the research results and context of operation are very important to determine the tasks and requirements.

I realized that circumstances of the operations determine the accommodation tasks and principles of the Hungarian Defense Forces.

I confirmed that the tasks of temporary accommodation require different preparedness, organization and equipment.

I summarized in a schedule the main principles and possibilities of the employment and accommodation of military forces.

I determined that the current organization and equipment of the Hungarian Defense Forces fit to support the public utilities with limitation only, therefore I made proposals for transformation and training of troops, provision of equipment and launch new principles, methods, concepts.

By examine the critical elements of public utilities in a military camp I gave definition of public utility protection and I determined the tasks that assure the continuity and safety for customers.

I summarized the reasons causing danger in public utilities and their consequences, and I also made proposals to prevent and to repair these mistakes.

NEW SCIENTIFIC RESULTS

1. I *gave a definition for the infrastructure of military camps*, in accordance with the systems of national infrastructure, defense infrastructure and military infrastructure.
2. I *gave a definition for water supply and sewage of military camps,* determined the basic requirements of water public utilities of these military camps, in accordance with expectations of the present and the future.
3. I *gave a definition for protection of public utilities,* which ensures continuous and reliable functioning of them in a military camp. I determined the critical elements of these utilities, which may endanger the safety of personnel and success of tasks in case of their malfunctions.
4. I *analyzed the situation of water supply and sewage of military camps*, and after uncovering the imperfections, I *confirmed, that these two large areas should be manage as one for the Hungarian Defense Forces*. It has to be managed as an integrated system of water management, and a part of the infrastructure-system of the military camps.
5. After analyzing the present situation of the water supply and sewage, I confirmed, that we have to manage the water resources. I *made proposals in order to saving potable water and environmental protection*, for the usage of rainwater and reuse cleaned sewage-water.

Employment of research results, proposals

My thesis may useful during the planning process of the future researches and modernization of equipment used for non-combat engineer support of forces.

It may be useful for elaboration of engineer directives on public utilities in military camps. I also consider employing my scientific results as theoretical basis of military public utilities.

It probably useful during the training and education of military engineer officers and other personnel, that participates in the planning process of the public utilities of a military camp.

My thesis also may be used as background educational material of Miklós Zrínyi Defense University for studies of public utilities and protection of public utilities. It can be useful for students during their self-education and can help to understand and elaborate the system of the public utilities.

Major Engineer Kálmán Dénes

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