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Original article

Condition of decommissioned military barracks in Hungary

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ABSTRACT

The reforming of the armed forces caused huge and continuous cuts to the manpower and to the finances. Which resulted of the decommission of numerous barracks throughout the country. The size and structure of these forces was not appropriate for the threats that the country faced, and country did not have the required resources to develop a new form for its armed forces. The aim of this article was to investigate opportunities in the case of decommissioned barracks, which point to the possibility of re-using abandoned buildings and sites and reducing the environmental damage that can still be found there. Due to changes in the economy and society of Hungary at the end of the 20th century, the number of barracks/garrisons and the structure of the Hungarian Defence Forces have changed substantially over the intervening years. Most of the garrisons in the countryside have been downsized by hasty decisions, leaving behind non-utilized and unsalvaged areas and in many cases a vast infrastructural heritage. Opportunities for the utilization of these abandoned facilities and the amelioration of environmental damage must be sought. Therefore, it was necessary to map and investigate the current conditions of these former garrisons. The author visited most of the closed barracks in all the counties of Hungary. The author also searched for information about Hungarian and Soviet barracks and examined the condition of decommissioned barracks at first only the possibility of their utilization was considered, later, an environmental point of view was added.

KEY WORDS: military science, environmental science, abandoned garrisons, environmental damage, environmental remediation, military infrastructure

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1. Introduction

Hungary underwent comprehensive changes in its society and economics at the end of the 20th century. As a consequence, the Hungarian Defence Force and its structure, and location altered considerably. This resulted in a large number of Hungarian and Soviet garrisons being closed and consequently, a vast heritage of defensive infrastructure and many unsalvaged buildings and sites remained, and their deteriorating condition has become a burden on their local environment. „*Seven combined arms, one artillery, twenty-two tank regiments were dissolved. The army also completely stopped fielding rocket artillery battalions*" (JAKUS, 2005: 68). After the end of the Warsaw pact the images of the common enemy were gone, without them there was no rationale for keeping the army as big as it was. The country set a new goal, of a small, compact, modernized military. The concept was to change the old, oversized, organization which was only loyal to the politburo, to a national, self defending force, which was directed by the parliament of Hungary. This study is an outline of a diagnosis that developed in connection with the closure of Soviet barracks as a result of the continuous downsizing of the Hungarian Armed Forces.

In the case of decommissioned barracks, it is necessary to look for possibilities that show the usability of these abandoned buildings and sites and aim to reduce the environmental damage that can still be found there. The first aim was to

gain an insight into the current condition and environmental situation of the abandoned barracks. The second aim of the research, was to consider possibilities for utilizing them, especially to consider their possible use in dealing with the serious situation caused by migration.

Research hypotheses: the former military infrastructure is currently in an unacceptable state and pollutes the environment if it is not used. These facilities can be utilized after refurbishment. The subject of the research is the utilization rate of the current military facilities of Hungary. Can former military barracks be used for defence purposes, or can they play a role in managing migration? If these buildings can be re-activated, will they contribute to the utilization of brownfield sites and the mitigation of environmental pollution. The study focused on the following: the almost complete mapping and reconnaissance of decommissioned barracks, research into the possibility of their utilization. The analysis of these facilities showed very similar results. In light of these facts it was decided that the study will be narrowed down to the area of South Transdanubia, and it's scope widened with environmental survey and assessment

This article will shed light on the need for environmental protection and the enhancement of activity in this direction. The recurring and substantial downsizing have been taken place during the military reforms and restructuring from the nineties onwards. „*As a consequence of all of this, a whole number of military facilities, mainly garrisons became functionless, abandoned and dilapidated rust-belt area in the capital and the countryside*" (CSAPÓ & LENNERT, 2015: 228).

A comprehensive analysis about this topic covering all regions has not yet been completed in Hungary. JARCZEWSKI & KURYLO (2010) investigated the revitalization of Poland's former military facilities. "*One of the most frequent methods of post-military structure revitalization was the adoption of buildings for housing purposes*" (JARCZEWSKI & KURYLO, 2010: 126). This aspect progressed similarly in Hungary.

In KÁDÁR'S thesis (2013), regarding Szolnok, Debrecen, Győr, Szeged, Kecskemét, Székesfehérvár - and in the case of the change of function of the former Soviet military areas in Debrecen by KÁDÁR & KOZMA (2011) – urban space types were examined from a functional and structural point of view. CSAPÓ & LENNER (2015) mention the abandoned barracks while examining the settlement morphology of Budapest. DANNERT & PIRISI (2016) examined the utilization of military brownfields in small towns. ŁĘKAWSKI (2017) investigated the positive effects of integrating a revived fortress into the city of Koblenz. In her study, RUDNICKA-BOGUSZ (2022) tried to determine how former military buildings are currently treated as cultural heritage features. As a result of her investigations: "*Post-military complexes can also be the focus of cultural tourism*" (RUDNICKA-BOGUSZ, 2022: 28). Whereas ZAGROBA (2015) investigated the positive effects of the renovation of neglected barracks buildings in Olsztyn. A model to be followed from Poland: "*The troops of the Russian Federation left Legnica in mid-September 1993. Since then, the city has developed almost all of the property left by them*" (from the site of Development of property after Soviet Army Units).

This article relies on secondary analyses of the literature, previous dissertations by the János Bolyai Military Technical College, the Budapest University of Technology and Economics, and the Corvinus University, and the publications to date of the author. Materials received at the advanced course of defence administration organized by the Faculty of Military Sciences and Defence Officer Training of the National University of Public Service were reviewed by the author.

2. Materials and methods

The necessary official permits were obtained from the leader of the Hungarian national armed forces, to be able to collect the material and conduct the analysis. With regard to soil maps and GIS maps, the author consulted with the head of the Geoinformation Service of the Hungarian Academy of Sciences and the Director of the Institute of Soil Science and Agrochemistry of the Hungarian Academy of Sciences, and with the Head of the Department of Environmental Informatics of the Hungarian Academy of Sciences. In connection with the building settlements and environmental damage caused as a consequence of the Soviet troop withdrawal, several institutions of the Hungarian National Archives were visited throughout Budapest. The author consulted with experts in the field at the Real Estate Development and Environmental Protection Department of the Infrastructure Directorate of the Defence Economics Office of the Ministry of Defence, and with those who had previously carried out scientific research on defence administration and included their suggestions and remarks in this article.

Library research work was carried out in Budapest at the National University of Public Administration, and in the library of the Pécs Knowledge Centre, and the university libraries of the University of Pécs. The personal experiences gained throughout various roles during his employment in the Ministry of Defence and the

Hungarian Armed Forces and foreign missions were of relevance to this research areas. Affected areas were visited and photo documented. Based on empirical research, there were investigations conducted in general, regarding the defunct military buildings, and then the national, Budapest and rural garrisons were compared based on certain aspects. During the visits it was disregarded whether the barracks hosted less or more than 200 soldiers, nevertheless, the author tried to visit larger facilities. In the second phase of the research, with the migration problem explosively coming to actuality, the investigation which originally targeted environmental protection was expanded with the assessment of possible utilization of said neglected facilities. 144 garrisons were analyzed and the aggregated observations were put into a table (Table 1).

3. Results

3.1. Location, surroundings and utilization of abandoned military facilities

Location and use of abandoned military facilities. In the absence of the necessary information, I measured some objects with a field visit up, I identified it, and then placed it on the map. The Figure 1 shows the barracks of the survey. The experiences of barracks visits were summarized in Table 1.

The civil sector does not mean governmental utilizations, such as schools, kindergartens, and other social institutions here, but industrial and residential areas, utilization for commercial and touristic purposes. Garrisons which were utilized for civil and government purposes were not used completely in terms of the whole area of the site (Fig. 2). However, those not completely utilized areas were considered as utilized, because not the whole area of those barracks is amortizing. The use of these buildings for civil purposes somewhat compensated for the loss of jobs which had been subsidized by the state due to the closureof these garrisons. The examined 144 barracks were located as follows:

– inside settlements (54) used and unused together,
– at the border of, or outside, a settlement: 90 used and unused together,
– number of utilized barracks inside settlements: 44, which is 81.48% of the garrisons inside,
– number of utilized barracks at the border of, or outside, a settlement: 23, that is 25.55% of this category.

Based on the above it can be concluded that garrisons within the settlements have been utilized in greater proportion than those at the border of, or outside, the settlements. It can be explained by the ordered condition of the surroundings, the supplementary infrastructure, and the economic situation being better inside the settlement.

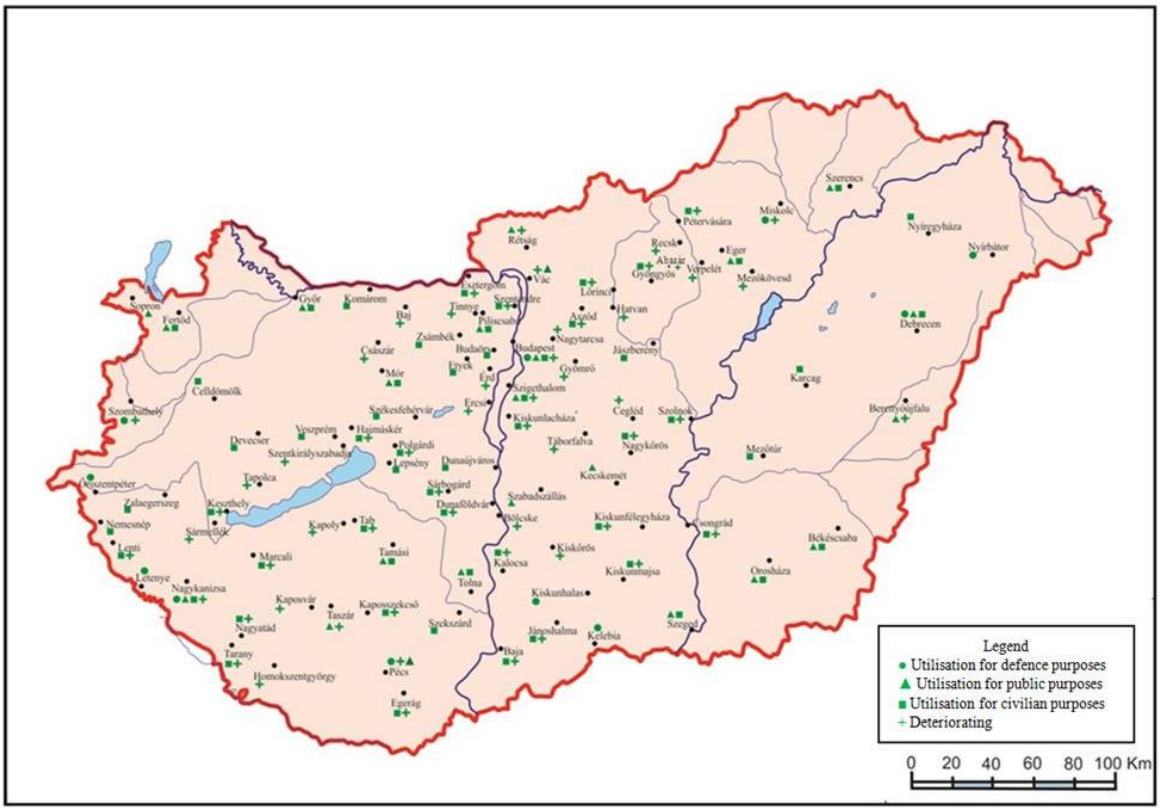


Fig. 1. Type of utilization of baracks visited by the author (Source: own survey, 2022)

Table 1. Currently utilized barrack, utilization types in more detail (Source: author's research, 2022)

Qualification	Observations/ [%]
Utilization for defense purposes	13 (9.03%)
Utilization for civil sector purposes	50 (34.72%)
Utilization for governmental purposes	34 (23.61%)
Disintegrating, unutilized	47 (32.62%)
Used for purposes other than defense:	
Qualifications	Observations
Utilization partly for social purpose	11
Utilization partly for cultural purpose	17
Utilization partly for sports purpose	7
Utilization partly for residence estate	24
Utilization partly for industrial park purpose	34
Utilization partly for commercial purpose	17
Utilization partly for touristic purposes	4

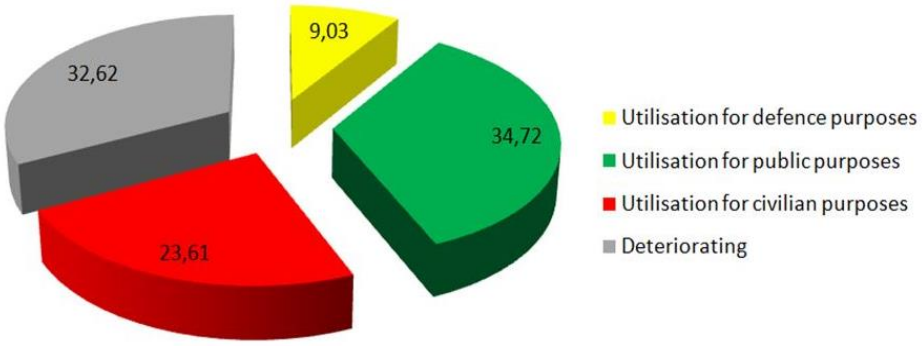


Fig. 2. Utilization of the garrisons visited by author II (Source: author's research, 2022)

Proportion of garrisons without Budapest. Compared to the nationwide average in the capital the reusage of old barracks have been significantly higher then in the countryside, presumably because of the higher economic development (Fig. 3). Location of the 128 garrisons examined:

– inside settlement 40; number of utilized garrisons: 34, which makes 85% of the garrisons inside the settlement,

– at the edge or outside the settlement: 88; number of utilized garrisons: 21, which makes 23.86% of this category. Uses other than defense are listed in the table (Table 2).

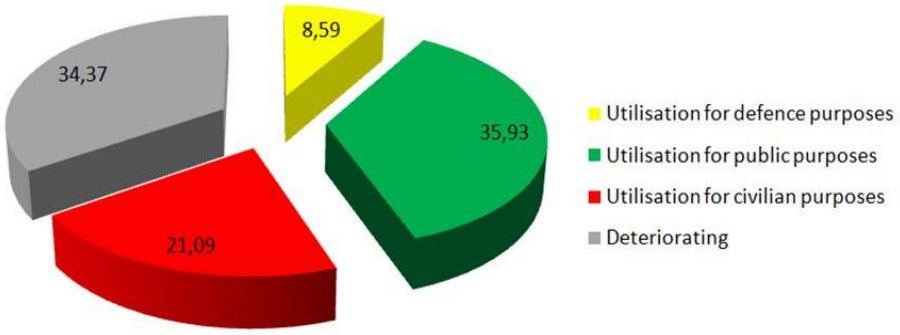


Fig. 3. Utilization of abandoned garrisons outside Budapest (Source: own survey, 2022)

Table 2. Proportion without of garrisons in outside Budapest (Source: author's research, 2022)

Qualifications	Observations /[%]
Utilization for defense purposes	11 (8.59%)
Utilization for civil sector purposes	46 (35.93%)
Utilization for governmental purposes	27 (21.09%)
Disintegrating unutilized	44 (34.37%)
Used for purposes other than defense:	
Qualifications	Observations
Utilization partly for social purpose	8
Utilization partly for cultural purpose	13
Utilization partly for sports purpose	4
Utilization partly for residence estate	23
Utilization partly for industrial park purpose	31
Utilization partly for commercial purpose	13
Utilization partly for touristic purposes	4

Condition of abandoned garrisons in Budapest. A total of 16 garrisons located in Budapest were analyzed and the results are shown in Table 3. Location of the 16 examined garrisons in Budapest:
– inside settlement: 14,
– number of utilized garrisons inside the settlement: 10; that makes 71.42% of the garrisons inside the settlement,
– at the border of or outside settlement: 2,
– number of utilized garrisons at the border of, or outside, settlements: 1; that makes 50% of this category.
The utilizations are shown in Figure 4.

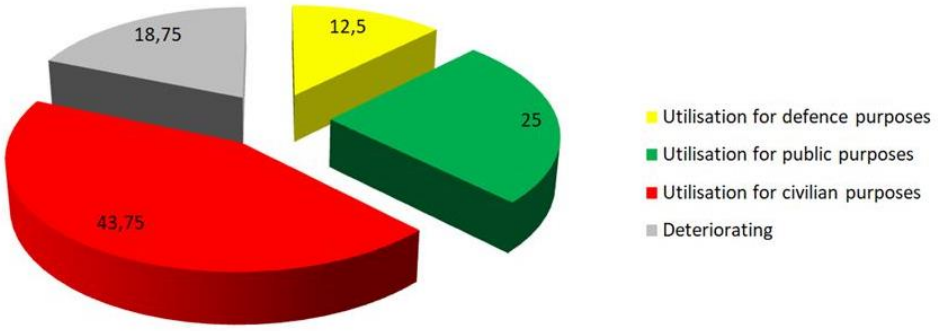


Fig. 4. Abandoned garrisons in Budapest (Source: author's research, 2022)

Table 3. Condition of abandoned garrisons in Budapest (Source: author's research, 2020)

Qualifications	Observations /[%]
Utilization for defense purposes	2 (12.50%)
Utilization for civil sector purposes	4 (25.00%)
Utilization for governmental purposes	7 (43.75%)
Disintegrating unutilized	3 (18.75%)
Details excluding utilization for defense purposes	
Qualifications	Observations
Utilization partly for social purpose	3
Utilization partly for cultural purpose	4
Utilization partly for sports purpose	3
Utilization partly for residence estate	1
Utilization partly for industrial park purpose	3
Utilization partly for commercial purpose	4
Utilization partly for touristic purposes	-

3.2. The situation of the environmental remediation

State of the remediation of the environment in the vicinity of disused military barracks. There are several factors influencing whether a garrison is utilized, and one such factor is the amount of environmental contamination and the state of decontamination. Environmental decontamination had not been carried out at the majority of the abandoned garrisons. At the beginning of the third millennium, there were *„29 garrisons were planned for decontamination of contaminated areas and contaminating sources*" (BÁRSONY, 2005: 91) depending on budgetary possibilities, however, this was far from all of the garrisons that needed such treatment.

In many cases the reason most of the barracks were unused was because the facilities were located besides inhabited areas, often under the custody of municipalities with low resources, but the investment needed for the restoration of the environment required greater sum of money than renovating the buildings, therefore the condition of the buildings deteriorated further. It is necessary to cleanse, decontaminate and remodel the area for investors before being re-used. However, the immediate re-use was made impossible and thwarted by the lack of resources for decades. In places the soil and water base, elsewhere the built surroundings like roads or bridges, in other places the natural environment, the ecosystem is affected. In the area surrounding the abandoned garrisons the soil and ground-water contamination was of the following type:

1. water decontamination, desiccating sewage and,
2. presence of hydrocarbon derivatives (heating oil, diesel, kerosene) in the area of gas tanks, repair shops, and airports,
3. heavy metal contamination present in store facilities, repair shops, and shooting ranges.

During the field work to the garrisons, it was surprising how much damage had been done to protected natural habitats and landscapes by bomb craters, shooting ranges, and the tracks of utility vehicles. The withdrawal of the Soviet troops and its financial settlement were accompanied by long and difficult negotiations. The Soviets wanted compensation for the military buildings in Hungary, and the Hungarian government wanted compensation for the environmental damage that had taken place in the vicinity of the buildings and other various Soviet projects. A solution was found where both sides would break even, and where both the Soviets and the Hungarians mutually gave up their claims, and this way "*Soviets didn't pay for the damage done and Hungary didn't pay back the projects financed by the USSR*" (BÍRÓ, 2009: 10).

Many of the old Soviet barracks still pollute their surroundings to this day. *„In cases it is the ground and water, in other places it's the built environment, roads, bridges, buildings, and again in other cases it's nature itself, forests, lakes, sometimes whole ecosystems are affected*" (KRETZ, 2017: 117).

Garbage collection effort should be counted as part of the externalities of economy, this way it could gather greater attention than it currently has. In the *„Theory of Internalizing externalities"* by PIGOU (1920) he has clearly shown *„a need for taxation on environmental pollution itself*" (KEREKES & SZLÁVIK, 2003: 81). The affiliated polluters – with the exception of edge cases e.g. Soviet barracks, where taxation is not possible or counter productive – the polluter should pay taxes in compensation for the cost to the local society which suffers (environmental cleaning, adverse health effects, etc.). After the regime change in Hungary the priority was deemed low for environmental conservation in the face of other problems affecting Armed forces of Hungary. "While the priority of the environment remains low for the government there is little chance for any sustainable development or environmental conservation, as the polluting substances and military waste accumulated over the decades still affects the environment countrywide.

3.3. Case studies of defunct military barracks

Hungarian armed forces 101th Brigade „Szigetvári" Miklós Zrínyi Mixed Artillery Brigade – Pécs. Servorg Kft. (2004: 29) carried out a full-scale environmental assessment of these barracks within the framework of the National Defence Subprogramme of the National Environmental Damage Remediation Program – on behalf of the Department of Infrastructure, Department of Environmental Protection of the Hungarian Armed Forces The aim was to assess the environmental condition of the soil and groundwater of the area under investigation based on drilling and analytical data from the Servorg documentation (concentration of carbohydrate contamination in groundwater). The task of the environmental assessment was to summarize the general environmental protection situation of the site in a condition assessment, to determine the extent of environmental damage and the areas of responsibility. After the survey, the rehabilitation costs, the location of the necessary environmental protection interventions and the cost of complying with the applicable environmental regulations could be determined. Hazardous waste may have been generated in the barracks during

the following activities: car washing, car maintenance, fuel storage, combat training, patient care, storage.

Based on the the testimony of Gyovai-B. R. from Ministry of Defence head of the department of Environmental Protection, it is clear, and also confirmed by experts, that no compensation was paid in Pécs after the Soviet operations ceased. Groundwater around the new and old fuel wells was contaminated with hydrocarbons. *„Preserving and improving the quality of groundwater during peace operations and readiness is a task of high importance for military environmental protection and environmental security efforts*" (SZOBOSZLAY, 2003: 15).

Based on the environmental condition assessment of the barracks, the contamination of the soil was clearly demonstrated. The barracks on the outskirts of Pécs, languished unused for 18 years and without any thoughts on re-use (Figures 5-6).

Based on the Servorg survey (2004: 29) and confirmation from experts it is unambiguous that decontamination was not conducted in Pécs at the garrison after it was closed. From Table 4 it is possible to state that the groundwater of the gas stations is contaminated with hydrocarbons. Based on the environmental survey of the garrison the contamination of the garrison is unambiguous.



Fig. 5. Pécs, 101. „Szigetvári" Miklós Zrínyi Mixed Artillery Brigade "a corridor main building" (Photo made by author)



Fig. 6. Artillery Brigade of Pécs yard of the company block called „U" shape (Photo made by author)

Table 4. Excerpt of results of ground-water samples (Source: author's edit based the results of Sevorg Kft., 2004)

	Gas station well (new)	Gas station well (old)	Background (upper)	Gas station well (old)	Background (lower)	B contamination threshold	C, contamination threshold for immediate action
Drill #	1.	2.	3.	5.	6.		
Concentration of TPH in ground-water [µg/l]	150	1790	202	90,8	65,3	100	500
Concentration of benzol in ground-water benzol [µg/l]		nd.		nd.		1	5
Concentration of toluol in ground-water [µg/l]		0,7		nd.		20	30
Concentration of etil-benzol in ground-water [µg/l]		0,6		nd.			
Concentration of xylol in ground-water [µg/l]		1,9		nd.			
Concentration of other alkyl-benzols in ground-water [µg/l]		6,1		nd.			

Kaposvár, Táncsics garrison recruitment headquarters. In the third phase of this research, the final report of the area, that contains the contamination levels related to the water under the surface was looked through (Table 5). Based on the research the cause of the environmental contamination was leakage beneath the surface from the gas tanks.

The money for the high cost of decontamination was not available, only the plans for it were completed (Table 6). Based on examined documents from Mélyépterv Kultúrmérnöki Kft. (2009) and confirmation of the facts by experts the decontamination was not conducted at the garrison.

Table 5. Excerpt containing the result of the ground-water samples (Source: author's edit, 2019) based on the results of Mélyépterv Kultúrmérnöki Kft., 2009)

TPH-GC	µg/L	83902	4339	<20	253	<20	100
Benzol	µg/L	<0,02	<0,02		<0,02		1
Toluol	µg/L	<0,01	<0,01		<0,01		20
Etil-benzol	µg/L	<0,01	<0,01		<0,01		20
rn-, p-xylol	µg/L	<0,01	<0,01		<0,01		
o-xylol	µg/L	<0,01	0,02		<0,01		
Xylols subtotal	µg/L	<0,01	0,02		<0,01		20
l-propyl-benzol	µg/L	0,03	0,02		0,02		
n-propyl-benzol	µg/L	0,02	<0,01		<0,01		
1,3+1,4 metil-etil-benzol	µg/L	0,05	0,13		0,04		
1, 3,5 trimethyl-benzol	µg/L	0,33	1,1		0,03		
1,2 metil-etil benzol	µg/L	0,03	0,72		<0,01		
Tec. butil-benzol	µg/L	0,02	0,05		<0,01		
1,2,4 trimethyl-benzol	µg/L	0,03	0,5		<0,01		
Szak. butil-benzol	µg/L	0,2	0,2		<0,01		
l-propyl-toluol	µg/L	0,48	0,96		<0,01		
1,2,3 trimethyl-benzol	µg/L	0,68	0,34		<0,01		
n-butil-benzol+p-dietil-benzol	µg/L	<0,01	<0,1		<0,01		
1,3-dilzopropil-benzol	µg/L	<0,01	0,23		<0,01		
1,3,5-triethyl-benzol	µg/L	0,08	0,54		0,07		
Other alkilbenzols total	µg/L	1,93	4,79		0,16		20

Table 6. Planned cost decontamination and disassembly of Heating Oil Tanks
(Source: author's edit based on the table from findings of Gyovai-B. R., 2015, information from Ministry of Defence, Bureau of Defence Economics, Directorate of Infrastructure, Department of Real Estate Development and Environmental Protection

Dismantle of HO tank at building 14.	790 788 Ft
Dismantle of HO tank at building 15.	2 522 080 Ft
Dismantle of HO tank at building 29.	274 849 Ft
Dismantle of HO tank at building 62.	94 674 Ft
Dismantle of HO tank at building 66.	3 902 853 Ft
Dismantle of HO tank at building 85.	1 676 526 Ft
Dismantle of HO tank at barrack building	2 553 576 Ft
	Total: 11 845 275 Ft
Pulling out HO tanks at Kaposvár recruitment headquarters	3 097 113 Ft
Decontamination – technical investment plan	374 253 750 Ft
	Total: 377 350 863 Ft

János Bolyai Military Technical College, Budapest. The János Bolyai Military Technical College once operated in Budapest and consisted of beautiful buildings. This area was one of the most attractive parts of the suburb of Ferencváros in the city. In 2008, the Ministry of National Defence sold the area to the Ferencváros Municipality. In accordance with the decision, the beautiful and modern buildings in the area were demolished, to the chagrin of many former students and officers. There was no investment in this area for years, so the buildings were wasted and the development of the area remained without a concept. The area was taken back by nature after 11 years of negligence, as Figures 7 and 8 show. A huge handball arena was built on the site for the 2022 European Championship in a short period of time, so the area was fully utilized after many years of lying derelict.



Fig. 7. *:* János Bolyai Military Technical College 1987
(Photo made by author)



Fig. 8. János Bolyai Military Technical College currently 2018
(Photo made by author)

3.4. Some examples and possibilities for the utilization of these sites

The government wants to relieve the crowded prisons and to improve the job market conditions by building new prisons. For that purpose, abandoned garrisons have been transformed, for example at Szombathely, the facilities of MH „Savaria" Bootcamp Centere, became part of the State Penalty Execution Authority. The Counter Terrorism Centre (TEK) has been located in the garrison of the MH1 Logistics Support Brigade (Figures 9 and 10).

In the case of the Fáy Street barracks in Budapest, full integration into the fabric of the settlement was achieved. The demand and funds were available for re-use because the area lies within the public institutional belt in Budapest. The János Kodolányi University and the Chinese Trade Centre were established here by renovating the buildings (Figures 11 and 12). The demand and funds were available for re-use of the building because the area lies within the public institutional belt in Budapest.



Fig. 9. Szombathely, Savaria Bootcamp Centre
(Photo made by author)



Fig. 10. Budapest, MH 1. Logistic Support Brigade
(Photo made by author)



Fig. 11. Ex-garrison in Fáy street, Budapest, Chinese Trade Center (Photo made by author)



Fig. 12. János Kodolányi University
(Photo made by author)

3.5. Some photographs of unused garrisons located outside settlements

In the first round of inspections, these were the buildings that were deemed worthy of restoration (Figures 13–18). Renovation and reactivation of disused post-military buildings can, for example, be used as accommodation for migrants who come to Hungary for various reasons.



Fig. 13. Baj, Soviet Barracks
(Photo made by author)



Fig. 14. Nagyatád, Antal Nagy Budai Barracks
(Photo made by author)



Fig. 15. Rétság, HDF 31st János Hunyadi Mechanized Infantry Brigade (Photo made by author)



Fig. 16. Cegléd, György Dózsa Barracks
(Photo made by author)



Fig. 17. Újpest, Sándor Petőfi Barracks
(Photo made by author)



Fig. 18. Újpest, István Dobó Barracks
(Photo made by author)

4. Discussion and conclusions

All the abandoned military buildings are on brownfield sites. The re-use of brownfield sites (industrial, infrastructure, military buildings) are important city planning goals. If we plan to use our available land space sustainably, we should use brown fields for development projects, by rehabilitating them. This also lessens the burden on our green areas. Nowadays most barracks in the countryside have already closed. The examination of the remainder of these facilities, is a great opportunity,

even more so as population protection become more relevant and, protection of the material necessities whom are required for everyday life are on agenda. These empty barracks could be repurposed, thus saving money and help to solve the problems of border and territory protection.

In the case of cities not having county-wide rights, the concentration of the population or the economic performance then there is no meaningful demand for the area as resource. Garrisons located in inner areas, or near the city center are re-used more often compared to those at the border, or outside the city. In the case of Budapest, the agglomeration lies near to the garrisons located at the outskirts of the city. Annexation of the suburban areas catalyzed the re-use of these old military complexes. The better re-use of garrisons located in the inner areas can be explained by the ordered condition of the surroundings, the provision of supplementary infrastructure, and the better economic situation within the city. However, there are still a lot of unutilized empty buildings and sites.

„*Nowadays, there are 268.9 hectares, 0.5 percent of the capital's area, of military and law enforcement areas, more than a third of which are currently unused rust zones"* (CSAPÓ & LENNERT, 2015: 228-229). Environmental pollution within a barracks is one of the main factors which decides if a municipality will use them or not. „*From 1990 to 2009, approximately 1,000-1,100 military properties with different geographical numbers were handed over to various bodies and municipalities*" (KÁDÁR, 2013: 58).

Based on the information in the tables it cannot be stated whether downsizing is decided by virtue of the location of the garrisons because downsizing was valid for all areas of the country. Nevertheless, as the middle of the country was the location of most of the garrisons, the closure of these facilities was highest in that part of the country. One of the opportunities of the former military objects is to relate them somehow to the security of Hungary. Discontinued barracks close to the border and on the edge of settlements can also be suitable bases for Police or the Hungarian Armed Forces, as the responsibilities of these organizations around border areas has grown significantly. Organizations such as the National guard could also be accommodated in these military buildings and sites, whom until now did not have an adequate amount of offices or facilities, and in a crisis situation, they would provide a significant amount of manpower, which would strengthen the country's defence capability. In peacetime, they could play a role in the patriotic education of the youth in cooperation with the National Defence Sports Association-orienting young people who envision a non-military career into the reserve system of the national defence. Some buildings may even function as quarantine accommodation after renovation.

„*As a matter of fact, the acquisition of the garrisons and the investments required for them gave the municipalities such hardly realizable assets, that were only realizable for economic or community development with great difficulties in the end (if at all)*" (DANNERT & PIRISI, 2016: 39). It can be declared that Hungarian society and politics was responsible for the former military infrastructure – which was downsized – irresponsibly because they were left to rot for years. Most cities and villages did not have the money to utilize the garrison or their legislative bodies couldn't come to a decision on what to do with them. The municipalities had no money to maintain them and to decontaminate the complexes, by cleaning soils contaminated with spilled oil, and to remove shell fragments. Currently, the buildings are degraded by extreme weather conditions, (wind, snowfall, freezing temperatures, flooding, and broken windows).

In the case of abandoned garrisons, society and its decision makers search for opportunities that enable the re-use of these facilities and the need to decrease environmental damage on these sites. One of aspect of sustainability could be if these buildings and sites could be renovated and re-used. Instead of tearing them down and condemning them to destruction, recycling may be the best alternative. There is an urgent need to stop the further deterioration of the environment of the affected areas because in their current state the contamination will keep getting worse; however, after decontamination and renovation, they could be utilized once more. "*Restoration of the barracks complexes will enhance the attractiveness of urban space (positive spatial solutions)*" (ZAGROBA, 2015: 139). "*In our globalized world, security does not start at our borders. Remote security risks, challenges and threats can enter our borders with dramatic speed*." (HUNGARY'S NATIONAL SECURITY STRATEGY, 2012: 74) „*Asymmetric warfare, hybrid warfare, and proxy wars have always existed throughout history, however, due to the need for complex management of increasingly complex crisis situations - in the spirit of the comprehensive approach – they are increasingly coming to the forefront these days*" (GERŐFI, 2017: 98). Since the development of the national defence came to the fore again, some barracks may be reactivated. Environmental remediation of the decommissioned barracks is progressing slowly. Substantial

environmental protection and national security issues, should have their own financial background, and not burdened onto the Ministry of Defence budget or other defense purposed and designated budgetary resources, that requires actions from the government.

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