

MIKLÓS ZRÍNYI
NATIONAL DEFENCE UNIVERSITY

Captain Natalia Antalicz-Gergelics

**Territorial and local investigation of public defence in area of Nuclear
Power Plant Paks**

PHD Thesis

Budapest
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Supervisor:

Dr. habil. Grósz Zoltán PhD

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INTRODUCTION, AIM OF THE WORK

By using of nuclear energy - against any effort to reach the least risk – it could happen nuclear events with environment contamination and public health impairment. The chance of these nuclear accidents is low, but it isn't inconceivable, that's why the responsible organisations must be aware to make public defence tasks, what's level at mitigation of nuclear accident's consequences.

In case of a nuclear accident in territorial level the Chair of County Defense Committee, in local level the Chair of Local Defense Committee and in settlements the mayor make the decision from the public protective measurements. People in these status make their tasks through law, they make professional decisions, in spite of that they get their mandate by political elections, not by their professional knowledge. They use often their guiding power, so they are adept in organising but not in nuclear issues, this put to trouble when they must hold on in dangerous situations. Considering this problem it is needed to analyse the territorial and local level of nuclear accident averting in respect with international experiences, and on the grounds of experiences I would like develop a method what ease the work of territorial and local protections direction.

Even so never a country can protect its population though protective system, it could be effective and successful, when the inhabitants take an active part in this. The population can be active participant of protective system, when their self-defense skill is developed. The nuclear public protective measures require the awareness of population, so they have a good grounding what can use in case of an emergency situation. That's why I search what's level is the nuclear knowledge of the people who live in the area of Paks NPP, have they any self-defense skill or how can it be developed.

The development of the populations self-defense skill is a long process. Every part of public awareness – education, alerting and communication – serve an end to aware the population for emergencies. I need to analyse the international and the hungarian public awareness system to find the best and most successful method.

AIM OF THE WORK IS:

- To compose the tasks of County Defense Committee in tabular form considering the system of hungarian territorial nuclear emergency response system and the transformation of administration system and to compose an activity order for Chairs of County and Local Defense Committee and for mayors.
- To analyse the public judgment of nuclear energy's safety and the nuclear knowledge of population on the grounds of international and my own survey.
- To develop a suggestion to improve the public self-defense skill by right of conclusions from surveies.

HYPOTHESIS OF THE WORK:

- The county nuclear emergency plans are complicated, but the tasks in tabular form can ease the work of County Defense Committee's Chair - checking teh tasks of each organisations. The mayors could be effective head of protection with help of an activity order.
- The people in the area of Paks NPP haven't got sufficient nuclear knowledge.
- Though the school education of nuclear knowledge the young people can conduce to protection's effectiveness.

RESEARCH METHODS

1. During the research of literature I elaborated both the hungarian and foreign topic-related literature in connection with nuclear emergency response system and emergency plans.
2. I made a distinction between european and hungarian nuclear public protective system and I studied scientific works and dissertations.
3. I analyzed the opportunity of county nuclear protection's modernisation though GIS informatics.
4. I participated in different cooperational field exercises, than I used the experiances and consequences.
5. I studied the tasks, events and concrete documents of rescue organisations and the disaster management.
6. I made surveys by questionnaires with the people living in area of Paks NPP on the public judgment of nuclear energy's safety and the nuclear knowledge of population.
7. I studied the methods of public awareness - I analysed the opportunity of application in school education.
8. I analyzed the appearance of emergency communication principles in public information plans.
9. I jumped to conclusion and made proposals.

DESCRIPTION OF THE WORK

In chapter I: I analyze the territorial nuclear emergency response through examples of Unites Kingdom and Belgium, furthermore I studied the oppertunity of adaptation in hungarian regulation. I determined that in Belgium the local tasks were coordinated in territorial level – it is in Hungary the regional level, but t doesn't work at the moment, so it can't be adopt. In Hungary there are 3200 local goverments in local level, half of them direct settlements which have less than 1000 inhabitants. In United Kingdom the first reaction is local level, which is in Hungary impracticable.

In this chapter I studied that how changed the new National Nuclear Emergency Plan the territorial and local protection. I determined that the most important changes for counties are: by international recommendations in place of Remedial Actions Zone (80 km) is

Ingestion Restrictive Zone (300 km), so many settlement must work out the „Emergency Plan for nuclear tasks” and many County and Local Defense Committee’s Chair meet first time with nuclear tasks – aware og these people is very important.

I reviewed the activity of County Defense Committee and I studied the situation after regionalisation and I pointed the breaks of continuity in point of Regional Administrative Office, National Medical Service, Environmental and Water Directorate, Environmental Inspectorate, electric current and gas services and police. I determined that the regional organisations must agree with County Defense Committee which specialist will be delegated and it must be fixed in plans. I actualised the work of County Defense Committee with help of GIS and decision support systems. I compose an activity order for County Defense Committee’s Chair.

In this chapter I studied the work of Local Defense Committee’s Chair and his effectiveness. I analyzed the work of mayor who manage the nuclear protection in his settlement and I pointed his problems. They meet with disaster management tasks only in a fiels exercise or training, so they haven’t enough practise to be a good chief. I compose them an acitivity order for nuclear emergencies.

In chapter II: I focused on the public judgment of nuclear energy’s safety and the nuclear knowledge of population. I demonstrated the results of international surveys. I made surveys by questionnaires with the people living in area of Paks NPP. I tested how aware are they in nuclear questions and have they any self-protect skill. In an other survey I analyzed how the people in Somogy County rate the safety of Paks NPP. I determined that the people living in area of Paks NPP are uninformed in nuclear questions, they don’t know the basic protective measures, the background of law and they wouldn’t be able to protect themselves in a nuclear emergency. They need the awareness and they will be fain to learn. The survey attest that the safety of Paks NPP is positive.

In chapter III: I studied some european country’s and Hungary’s public awareness method. I determined that it must attend to spend time the public awareness for nuclear emergency, we must teach them their tasks and the protective measures to be able to protect themselves. With my survey’s conclusions I prepared a teaching package for school education.

In this chapter I dealed with emergency communication and alerting in nuclear emergencies.

SUMMARY

Reviewing some european nuclear defence system, the hungarian regulation, the public awareness and emergency communication I make the following conclusions:

- Hungary's nuclear law regulation is eligible and measure up to expectations.
- The nuclear institutions as source of danger could be target of terrorist attacks nowadays, even in those countries who aren't in conflict. So the nuclear emergency response system should manage in accordance its danger.
- Planning the county protection it would be important to concrete the specislits delegating in County Defense Commitee – by this we could make an end the break of continuity resulted regionalisation.
- County and Local Defense Commitee's Chair need an activity order, with this they could be effective governor of nuclear protection in spite of that they haven't specialized knowledge and experience.
- The tasks of nuclear emergency response level at public protection, but everbody's task is the active participation. That's why the public awareness is important. It is necessary for inhabitants to know all knowledges which will be important in a nuclear emergency. It must be more emphatic for inhabitants to aware and to practise for a nuclear emergency.
- The nuclear emergency communication plans are worked out, in virtue of this the emergency communication to the public can be done, buti t is important to freshen the availability of persons in communication group and to training and practise this people.

RECOMMENDATIONS

- To adopt the activity order – which I compose - to the plans using by County and Local Defense Committee's Chair and mayors.
- To guarantee the financial needs for realizations the tasks of disaster management and County and Local Defense Committee's Chair.
- To ensure independence for mayor's office from traditional communication systems or to give way to them in emergencies.
- To strenghten by law the nuclear public awareness and to modernize the teaching packages.

THESES

1. I **compose the tasks of County Defense Committee in tabular form** considering the hungarian territorial nuclear emergency response system and the transformation of administration system and I **compose an activity order** for Chairs of County and Local Defense Committee and for mayors.

2. I proved by my surveys that **the nuclear knowledge of population** in the area of Paks NPP is **inadequate**, and I **defined the topics** on the grounds of law, on which should trend the public awareness in favour of effective nuclear protection.

3. By analyzing the involvement of public education in conveying nuclear knowledge I **prepared a teaching package for school education.**

PUBLICATIONS

In national journals in English:

1. Natalia Gergelics: Nuclear emergency planning in the United States – AARMS, Budapest, 2007/ 1., pp: 57-63.

In national journals in Hungarian:

1. Gergelics Natália: Környezetvédelem a Paksi Atomerőműnél - Új Honvédségi Szemle, Budapest, 2004./11., 136-139. o.
2. Gergelics Natália: Tűzszimulációs konténer a Paksi Atomerőműben – Védelem, Kaposvár, 2004/5., 51-52.o.
3. Gergelics Natália: Az atomenergia biztonságosságának megítélése Somogy megyében – Kard és toll, Budapest, 2005/1., 166-173.o.
(<http://old.honvedelem.hu/hirek/kiadvanyok/kutatas/tartalomjegyzek>)
4. Gergelics Natália: Lakosság- és környezetvédelem a Paksi Atomerőmű hosszútávú óvintézkedések zónájában – Kard és toll, Budapest, 2006/1., 128-135.o.
(www.honvedelem.hu/files/9/8569/128-134.pdf)
5. Gergelics Natália: Az atomerőművi balesetek elleni védelem koncepciója Svájcban – Kard és toll, Budapest, 2006/1., 135-142.o. (www.honvedelem.hu/files/9/8569/135-141.pdf)
6. Gergelics Natália: Nukleáris veszélyhelyzeti tervezés az USA-ban – Kard és toll, Budapest, 2006/3., 81-85.o. (www.honvedelem.hu/files/9/8574/081-084.pdf)
7. Gergelics Natália: Környezetvédelem a Paksi Atomerőműnél – Kard és toll, Budapest, 2006/3., 85-92.o. (<http://www.hm.gov.hu/files/9/8574/085-092.pdf>)
8. Dr. Nagy Lajos, Antalicz-Gergelics Natália, Papp Éva: Az atomenergia lakossági megítélése és a lakosság tájékozottsága a nemzetközi felmérések tükrében – Florian exPress, 2009. március 72-73.o., 104-109.o.

PROFESSIONAL CURRICULUM VITAE

Schooling

- 2004-** **Miklós Zrínyi National Defence University**, Doctorandi of
Military Science, PhD student
- 2004-2005** **Disaster Management Educal Center**
Disaster management organiser
- 1998-2003** **Miklós Zrínyi National Defence University**
Security- and defence policy
- 1992-1998** **Sándor Petőfi Evangelical Grammar School – Bonyhád**

Professional experience

- 2005-** **Somogy County Disaster Management Directorate**
Secretariat director, spokesman
- 2003-2005** **Somogy County Disaster Management Directorate**
rescueorganiser departement executive

Knowledge of foreign languages

- German – superior degree, C
English – superior degree, C, military specification
French – intermediate degree, C, military specification

Budapest, 20. May 2009.

Captain Natalia Antalicz-Gergelics