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Approach of social institutions to preparedness for emergency

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ABSTRACT

The third call of the Ministry of Interior of the Czech Republic concerning the support of research, experimental development and innovation, was announced for the period 2013–2015. The Institute of Radiology, Toxicology and Civil Protection of the Faculty of Health and Social Sciences of the University of South Bohemia in Ceske Budejovice submitted an application for research focused on population protection according to population differentiation. The aim of the project was to analyze the current status of evacuation planning from the emergency planning zone according to population differentiation. This article discusses the issue of social institutions preparedness for evacuation from emergency planning zones. Evacuation planning is one of the most important parts of population protection. It has its own specifics and it is necessary to consistently perceive all of the aspects that evacuation includes. Social institutions are one of the important aspects which must be considered. In the emergency planning zones of nuclear power plants there are a total of 10 social institutions.

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Introduction

To reduce threats in the Czech Republic, the Ministry of Interior founded the Security Research Programme in the Czech Republic in the years 2010–2015, where the project entitled: “Population protection according to population differentiation”, designed for the period 2013–2015 of the University of South Bohemia in České Budějovice was accepted in the 3rd public tender in research, experimental development and innovation.

The aim of the project is:

1. The analysis of the current status of evacuation planning from the emergency planning zones of the nuclear power plants Temelín and Dukovany, according to the differentiation of the population, and to prepare people for the possible disruption in critical infrastructure;
2. Proposing a new methodology for evacuation planning along with integrating new aspects of medical support;
3. Designing manuals for the population for the procedure of handling emergencies with the disruption of critical infrastructure in the context of ethical issues.

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The evacuation of people has to be dealt with in the field of fire protection as well as crisis management. Evacuation is addressed in Act no. 239/2000 Coll., on the Integrated rescue system as amended [1] and in regulation no. 380/2002 Coll., of the Ministry of Interior of the Czech Republic, on the preparation and execution of the tasks of population protection [2] (Part Four, § 12–14). Specific actions in this area are in accordance with regulation no. 328/2001 Coll., of the Ministry of Interior of the Czech Republic on some details of the integrated rescue system [3]. It is included in the plans for specific activities, which form part of the emergency plan of the region and the external emergency plan. These plans are: the evacuation plan as part of the emergency plans of the region and the plan for the evacuation of people (external emergency plan). Regulation no. 246/2001 Coll., on the determination of fire safety conditions and state fire supervision in § 33 of the fire evacuation plan governs the procedure for evacuating people, animals and material objects affected or threatened by fire [4].

Evacuation is considered as the most effective and widely used measure that is used for population protection to protect against the possible consequences of threatening or resulting emergencies. This measure applies to the entire population who are at risk in areas of extraordinary events, except for persons who will participate in rescue operations or the management of evacuation, or people who will engage in any emergency action. In the first step, evacuation is planned according to the preference of selected population groups [5].

Evacuation means ensuring the displacement of people, animals, objects of cultural value, technical equipment or machinery, materials necessary for preservation production, and hazardous substances from the places threatened by an extraordinary event. Evacuation is the movement to places that provide evacuees with alternative accommodation, meals, animal housing and storage for things [2].

In the areas of emergency planning of nuclear institutions (Dukovany nuclear power plant, Temelín nuclear power plant), the planned evacuation relates to the population of a part or the whole of the urban area, or a larger territorial area. It is based on the following principles:

- A. In case of a fault in a nuclear power plant technological mechanism, which could result in a radiation accident, the preparation for a direct evacuation is initiated. Direct evacuation means an evacuation which is carried out without the previous sheltering of the evacuees;
- B. In case of a radiation accident, depending on the wind direction, evacuation with sheltering is carried out from the centre and from other selected sectors. Evacuation with sheltering means evacuation conducted prior to sheltering the evacuees and after the reduction of the initial risk of exposure to radioactive cloud.

The basic role of the state is to protect life, health and possessions along with ensuring sovereignty, territorial compactness and the state's democracy basic protection [6]. All of these are ensured by the set of activities and procedures carried out by authorities, institutions and

services. Their aim is to minimize the harmful effect on the population.

One of the most basic ways of securing public safety is evacuation. This involves the relocation of people, animals, objects of great cultural value, technical equipment or machines that are essential for the local economy, or dangerous substances from the dangerous area. This requires the provision of several services such as transportation, housing, logistics, health care, security, information and others [2]. The authorities resort to an evacuation in cases when they are not able to effectively secure the safety of the public or animals in the dangerous area. One of the groups most threatened by such situations are people that rely on the care of others. These people are mostly housed in special social centres with day care and, because they require special attention, their transportation becomes particularly challenging for the authorities [7].

One of the events that most endanger public safety is a large-scale electrical blackout. Blackouts are becoming more and more common and they are usually a side effect of another critical event, i.e. floods, snowstorms and very strong winds. In the past few years blackouts have been an issue in Slovenia. The electricity of 150,000 households was cut off for several days. The situation was further complicated by a snowstorm and Slovenia was literally covered with ice. People were without heating, water and food. The Slovenian government called in the military and asked the European Union for help (including the Czech Republic) [8].

From a historical perspective we can mention a blackout that occurred in Auckland (New Zealand) in which over 1 million people were without electricity for 6 weeks [9,10].

Other large-scale blackouts include those that occurred in north-eastern Canada and the USA; where around 55 million people were impacted [11].

The trend of these blackouts is on the rise and we need to focus our attention on the protection of the public, and mainly on their preparedness. We need to ask ourselves where we should begin and whether this question is valid or not.

Social institutions

Social services are included in a broader category called public services. These services are financed by the state and are defined by legal definitions. This fact makes them dependent on political decisions at state and local levels. But if they are based on a marketing business contract between the provider and the user, they become a commercial service [12]. Social services are provided to people that are socially disadvantaged, with the aim of improving the quality of their life, integrating them into society or protecting the general public from the dangers these people create [13]. Social services are not governed by one subject. Social services fall under the authority of the Ministry of Labour and Social Affairs of the Czech Republic, which nationally establishes institutions with social care such as special institutions [14]. Health institutions that take care of people with long-term illnesses are established by the Ministry of Health. Educational institutions for children and teenagers are established by the Ministry of

Education, Youth and Sports. The probation and mediation service falls under the Ministry of the Interior. The establisher of subjects that provide social services can be the municipality, the region, Ministry of Labour and Social Affairs, non-state non-profit institutions [13].

The Act on Social Services categorizes them into the following groups:

1. *Social counselling*

“Basic social counselling provides the required information which helps people solve their inconvenient social situation. Social counselling is the basic tool used in all aspects of social services; the provision of social services is always required. The provision of specialized social counselling is based on the specific group of people that require it in public counselling centres, marriage and family counselling centres, senior counselling centres, handicapped counselling centres, counselling for people that were subject to criminal activity or domestic violence and in special medical hospice-like institutions, which also includes people with behaviour which may lead to conflict with society” [14].

2. *Social care services*

“Social care services help people to be physically and mentally self-sufficient with the aim of helping them to participate in everyday life as much as possible. In cases when their conditions prohibit this, the aim is to provide them with dignified treatment. Everyone has the right to receive social care services in a non-restrictive environment” [14].

Such services include weekly care centres, care centres for the handicapped; care centres for senior citizens, care centres with special regimes, shelters, and social services provided in health care institutions.

3. *Social prevention services*

“Social prevention services help to prevent the social exclusion of people that are in danger of creating a conflict with society because of their way of life and life choices. The aim of social prevention services is to help people overcome their unfavourable social situation and to prevent the spreading of negative social elements in society” [14].

Services include: sanctuary homes, halfway houses, dosshouses, therapeutic communities and social rehabilitation.

Act no. 108/2006 Coll., on social services defines individual social services and their purpose. For emergency management, it is important to define which of them provides accommodation services. These are the centres for handicapped and centres for seniors [15].

In centres for the handicapped, accommodation is provided for people who have reduced self-sufficiency due to their handicap and so their situation requires regular care from another person. The services provided in these centres are complex and permanent care.

Centres for seniors provide accommodation for people who have reduced self sufficiency due to their age and so

their situation requires regular care from another person. Their social situation does not allow them to live in their own home environment.

From the alert analysis of social institutions for evacuation and ability to function during a blackout it is clear that there is a notable shortage in institutions' preparedness. Most social institutions are neither ready for an evacuation nor for a possible blackout. These critical events are threats for them. They do not ready themselves for critical events, even if they can get rid of them by effective preparedness. The current situation is a result of the lack of financial resources that are in these institutions.

Materials and methods

For the purpose of the research and analysis of social institutions in order to examine their readiness to evacuate and their ability to function during a blackout (which would be caused by a nuclear accident) several institutions were questioned which are established under Act no. 108/2006 Coll., regarding social services and provision of accommodation [15]. From January 1st 2007 these institutions have been listed in the register of providers of social services. Thanks to this register we were able to question all institutions in the emergency-planning zone (EPZ) of nuclear institutions in the Czech Republic (Temelín and Dukovany) and to research the problems of planning the evacuation and the evacuation itself [16].

In the EPZ of both nuclear institutions there are 10 social institutions with 5 different forms of social services. In the Temelín zone there are two institutions providing accommodation services. These are St. Ann's house in Týn nad Vltavou and Jihočeská růže shelter in Kostelec, which fall under the social services of Hluboká nad Vltavou (Chart 1).

There are eight institutions in the EPZ Dukovany; one sheltered housing in Koněšín, four centres for seniors (Myslibořice, Skalice, Jevišovice and Plaveč), one home with a special regime in Hostim and two centres for the handicapped (Chart 2).

These institutions carry out regular and constant care of clients who have reduced self-sufficiency due to health and social reasons.

For data collection the PAPI method (pen and paper) was selected, which offered many positives to interviewers. One of these was that it enabled direct contact in social institutions with an explanation of the issues in case of misunderstanding or for clarification. Respondent's answers were not curt but the relevant data was achieved. Respondents filled in all of the answers and thanks to this approach the return rate of the questionnaires was 100%. We were able to consider these results valid and make appropriate conclusions.

The questionnaire was the same for all social institutions. It consisted of a total of 20 questions, which were focused on the identification of social institutions, and staff who ensured evacuation.

The first 3 questions were informative. They served for further splitting of the results according to the kind of

Chart 1 – EPZ Temelín

social institutions or forms of services provided. Question 4 examined the total employee capacity of the institution and the number of professional staff, who ensures the care of clients, the number of support staff, and who takes care of the technical operations. This question evaluated whether the institution is adequately staffed. Question 5 examined the number of all of the employees in the various age groups. Age groups were chosen due to the nature of the research in the ages of 18–40 years, 40–65 and 65 years and above (Table 1). Age limits were not chosen randomly. For age determination we worked on the assumption that people older than 40 years had met with population protection during evacuation training in primary and secondary schools and have some idea of how to behave and what to do and are able to transfer the information into practice.

Thanks to the innovation of education after 1989, evacuation training in primary and secondary schools has been abolished and the people under the age of 40 have not undergone evacuation training at school. Question 6 focused on the exact number of employees on a day and night shift. This is the number of employees who are in a given social facility on site and ensuring the care of clients.

The next 3 questions were focused on the clients. What is the maximum client capacity in the institution? What kind of disability dominates and what is the number of clients who are confined to a wheelchair and bed. This information is very important in solving evacuation outside the EPZ.

Questions number 10, 11 and 12 were focused on the readiness of social institutions for evacuation, whether they need help during the evacuation, what type of help they need most, and what means of transport they need to evacuate outside the EPZ.

Table 1 – Employees' age differentiation

	Senior centres	Centres for the handicapped	Sheltered housing	Centre of rehabilitation services	Asylum house
18–40 years	95	67	0	30	1
40–65 years	216	82	3	10	4
65 years and over	0	0	0	0	0

Chart 2 – EPZ Dukovany

Other questions focused on the evacuation: whether the respondent knows how much time they need for the evacuation. Whether there is a plan for the evacuation in the institution, and what data it contains. In what way and how often is evacuation training carried out and what is the manner of preventive and educational activities for the clients?

The questionnaire was drawn up in the first year of the project. The addressed respondents were the directors of the various social institutions.

The data collection was evaluated by SWOT analysis, which served as a base for the creation of the certified methodology for planning, preparation and execution of the evacuation from the EPZ.

Results

The most significant social institutions in both EPZ zones of the nuclear institutions are senior care centres and care centres for the handicapped. The research focused on these types of institutions. These institutions should

have a detailed evacuation plan based on their patients and a plan for a large scale blackout. Clients in these types of institutions require specific care and are reliant on the help of others. They cannot be treated like the regular population because their health or mental condition does not allow them to react quickly enough. In the case of an evacuation they must be handled with care. In the case of a large-scale blackout every client still requires basic health and social services. An important point in the research of the preparedness to evacuate in the case of a blackout was to find out the maximum capacity of clients in these institutions. Research showed the largest capacity was in the senior care centres. This arises from the fact that the population is getting older and there is a higher need to take care of seniors who do not want to live alone or are unable to take care of themselves. Due to these factors these institutions are at full capacity most of the time. Care centres for the handicapped are a specific service. In most cases it is a service which is provided in conjunction with other services. For example, in the senior care centres services are provided per bed. In the EPZ zones there are two centres that provide such services. Seniors that have

health problems and are unable to take care of themselves are in these institutions.

The combined capacity of all of the centres is 687 clients. Individual capacities in the senior centres are 135, 105, 73, 70 and 67 clients. The largest capacity is in the senior centres with 450 clients. Such institutions are considered to be medium sized. Care centres for the handicapped have a capacity of 174 clients, with individual capacities of 102 and 72 (Table 2). In terms of a large-scale evacuation

these institutions pose the biggest problem. Clients in these centres require sensitive care. We need to take into account their physical, mental and health condition. In most cases these clients are unable to act quickly and any stress is more challenging for these people than the rest of the population. In case of an emergency situation, social institutions need to take into account clients that are immobile and that they require additional transportation assistance or a special vehicle.

Table 2 – Client capacity

	Senior centres	Centres for the handicapped	Sheltered housing	Centre of rehabilitation services	Asylum house
Client capacity	450	174	18	20	25
Total	687				

From the total number of 687 clients in social institutions, 139 are bound to a wheelchair and 44 are confined to bed. The largest number of immobile clients is in the senior care centres. In these centres, 125 clients are bound to a wheelchair and 42 are confined to bed (Table 3). The biggest problem in case of an evacuation is the clients who are confined to their bed. They are immobile and require a special vehicle that is capable of performing

from a technical standpoint as well as to transport a hospital bed. Other vehicles cannot be used to transport these clients. An important factor is the changing number of immobile clients. Care centres are able to calculate the current number of patients; however they are unable to predict the future number of clients. The analysis showed a significant rising trend in the number of immobile clients.

Table 3 – Number of immobile clients

	Senior centres	Centres for the handicapped	Sheltered housing	Centre of rehabilitation services	Asylum house
Wheelchair	125	9	0	5	0
Hospital bed	42	2	0	0	0
Total	183				

When dealing with an emergency situation, we primarily need to take into account the availability of the personnel of every institution during day and night shifts. The aim of the research was to find out the number of workers in all positions. In normal conditions the number of workers that ensures the operation of the institution is quite small.

On average there are about 14 workers in a senior care centre on the day shift and 3 on the night shift. If we do the calculation, there are about 7 clients per worker on the day shift and 30 clients per worker on the night shift. The centre for the handicapped has about 37 workers on the day shift and 21 workers on the night shift (Table 4).

Table 4 – Employee capacity

	Senior centres	Centres for the handicapped	Sheltered housing	Centre of rehabilitation services	Asylum house
Total number of employees	311	149	3	40	5
Professional staff	185	115	3	10	5
Support staff	126	34	0	30	0

The number of personnel is higher due to the state of the health of the clients. On the day shift there are about 3 clients per worker and on the night shift 4 clients per worker. In the event of a complete evacuation of the institution it will be necessary to use every single available resource to ensure a smooth evacuation. In the case of the senior care centre there is a notable shortage of workers

that would be able to secure the evacuation. More than half of the institutions would ask for help from the official institutions to secure the evacuation or when dealing with an emergency situation such as a blackout.

In the event of an evacuation of an institution outside the EPZ the use of all available forces and means of the organization and a smooth progress of the evacuation

will be needed in a short time. In the case of the senior centre there is a visible lack of staff that are capable of accomplishing an evacuation. More than half of the

addressed institutions will be asking the authorities to offer assistance during the evacuation (Table 5).

Table 5 – Required evacuation capabilities

	Senior centres	Centres for the handicapped	Sheltered housing	Centre of rehabilitation services	Asylum house
No	0	1	1	1	1
Yes – we are not able to evacuate alone	5	1	0	0	0
We are not able to review a situation	0	0	0	0	0

The most common help, and the one which will be desired, is manual assistance. It means carrying clients to

the means of transport and subsequently into the reception centres of their re-sentencing (Table 6).

Table 6 – Kind of assistance needed for evacuation

	Senior centres	Centres for the handicapped	Sheltered housing	Centre of rehabilitation services	Asylum house
Manual assistance	5	1	0	0	0
Social assistance	0	0	0	0	0
Both	0	0	0	0	0

During evacuation planning for EPZ it is absolutely necessary to rely on the means of transport, which are appropriate for the evacuation. Of the 10 facilities, only one was partially self-sufficient. The other 9 facilities do not own a suitable means of transport that would be

suitable for evacuation. Appropriate means of transport are buses, minibuses and ambulances. Ambulances are one of the important elements during the evacuation. Clients who are confined to bed are only able to evacuate with an ambulance (Table 7).

Table 7 – Means of transport needed for evacuation

	Senior centres	Centres for the handicapped	Sheltered housing	Centre of rehabilitation services	Asylum house
None, we have our own	0	YES – 1	0	0	0
Bus	YES – 5	YES – 2	0	YES – 1	YES – 1
Minibus	0	YES – 1	0	0	0
Ambulance	YES – 4	YES – 1	0	0	0

An important aspect is the knowledge of the expected time of the evacuation. In the analysis of the preparedness of social institutions for evacuation, one of the most important criteria was the expected time of the evacuation. The analysis showed that the sheltered housing and asylum houses are the easiest to evacuate. These can be evacuated

within 1 h. The situation is worse in senior centres and centres for the handicapped. Due to the health status of clients, a longer period of evacuation must be calculated, which is approximately 2 h. Social institutions did not know how long the evacuation would last outside the EPZ. They have never met this problem (Table 8).

Table 8 – Time for evacuation

	Senior centres	Centres for the handicapped	Sheltered housing	Centre of rehabilitation services	Asylum house
Up to 30 min	0	1	1	0	1
Up to 1 h	0	0	0	1	0
Up to 2 h	3	1	0	0	0
More than 2 h	0	0	0	0	0
We do not know	2	0	0	0	0

Social institutions must provide their services even during emergency situations. It is therefore necessary that the institutions are ready for an emergency situation (including blackouts). The personnel working in these social institutions do not have the necessary skills in dealing with an emergency situation and underestimate their readiness in dealing with them. This fact arises from the general unpreparedness of the institution and the necessity to increase the knowledge of the personnel. Only a few social institutions have a backup generator. The results show that only 4 out of 10 institutions have a back-up source of electricity such as a 2 kW electrical generator. Usually the institutions that have these generators have previous experience with blackouts. The lack of a back-up generator results in the failure to provide basic services to the clients. If the institutions are to be ready for blackouts they need to have back-up sources of electricity. One of the main points of readiness is to build a distributor for a diesel generator. This distributor ensures the ability to use a diesel generator that would be provided in case of an emergency. This would ensure the basic functionality of the institution, i.e. lighting, evacuation lifts, minimal operation of the kitchen (which is about 1/3 of the standard operation, this would ensure the distribution of food, heating soups or liquids) and the operation of the boiler room. The minimal output of the generator has to be 1/3 of the output of the circuit breaker (increased by 30%) due to a rise in the electrical current. The planning phase needs to include the blockage of electricity from the power line and the creation of electrical socket circuits like in hospitals. These installations will enable the social institution to use a back-up diesel generator given by the official institutions in charge of dealing with the emergency situation.

Discussion

The research, which took place at the Faculty of Health and Social Sciences of the University of South Bohemia, was focused on all aspects of the planning area of evacuation. Planning an area evacuation from EPZ is a complicated process, which includes planning, preparation and the actual execution of the evacuation. One of the aspects that needs to be considered is the social institutions in the EPZ. Although there are not many institutions, the results show that in the territory of our two largest EPZ there are 10 social institutions with 5 different forms of social services. In these institutions a large number of clients are placed; this reaches a number of 687 plus their employees. This fact represents a big question mark in the process of evacuation planning.

SWOT analysis

The SWOT analysis results show a large number of weaknesses among the social institutions. The majority of the weaknesses can be prepared for by proper planning from the side of social institutions and also from the side of authorities who plan the area evaluation (Chart 3).

From the side of the social institutions it is mainly about the willingness to address the problem. The only ones who know the needs of their clients are the institutions themselves and their staff. Social institutions themselves should be active in the issue of evacuation. They should participate with other authorities on the methods and implementation of the evacuation of their institution. The results of the survey and the SWOT analysis show a huge unpreparedness and a reluctance to be active in evacuation planning. Social institutions do not want to solve the problem of evacuation, but the staff and the director are those who best know their institution. They know the needs of their clients and know what resources they need. They are able to communicate with clients in a way that does not cause injury. People from social institutions are irreplaceable in the area of evacuation planning and they must participate in this issue themselves. According to the results their greatest contribution is in the planning of the process of the institution in a crisis situation. The institutions themselves should be able to provide enough staff to be able to take care of the clients. In the case that an evacuation is declared during the daytime it will be easier to make it happen. At this time social institutions have enough staff that are able to take care of clients. The problem occurs during the night hours, when the institutions will not be able to ensure an evacuation; there is not enough staff to ensure the care of the clients, packing the hygienic aids and medicine. It is necessary to take this aspect into account in the planning of an evacuation. Another important aspect is the lack of means of transport. Social institutions do not have suitable means of transport, which would be available for evacuation. It is necessary to cooperate with the fire service to provide a suitable means of transport in time. In most cases it is an ambulance.

The social institutions themselves should participate in searching for suitable places of emergency accommodation; places where it is possible to take care of what an evacuated client needs. Current status contemplates to evacuate clients to school or hotels. Unfortunately these places are not suitable for the location of the clients. It is necessary to look for such a place where full social-health care can be maintained. However, without the active participation of the social institutions this is out of the question. The social facilities themselves should be more proactive in addressing preventive educational activities (which must be adapted to clients). All these aspects should be taken into account in the planning area of evacuation.

Making plans of evacuation with social institution integration

In the individual zones (EPZ) of nuclear institutions, there are several social institutions that need to be evacuated in the case of an emergency. The basic scope of providing social help and support is established in Act no. 108/2006 Coll., on social services [15]. This incorporates the provision of services that are needed to socially integrate people and provide them with dignified treatment.

From the perspective of planning, social institutions have their pros and cons that need to be taken into account in the planning.

	STRENGTHS		WEAKNESSES	
	1	Small number of social institutions in EPZ	1	Big capacity of social institution
INTERNAL	2	In the day shift there is enough staff	2	A large percentage of clients have problems with moving
	3	Social institutions are able to evacuate before the house	3	Night shift is understaffed
	4	Social institutions have a fire evacuation plan	4	A large number of immobile clients
	5	Most social institutions performs training of evacuation according to the fire evacuation plan	5	Social institutions are not able to evacuate outside the premises of the institution
			6	Social institutions do not have their own means of transport, which can be used to evacuate
			7	Social institutions do not have a plan for area evacuation
			8	There are not planned places for emergency accommodation
	OPPORTUNITIES		THREATS	
	1	Create a functional plan of the evacuation in terms of the area evacuation	1	The reluctance of special authorities to help
EXTERNAL	2	Regularly tested evacuation	2	Social institutions have small finances
	3	Identify the locations of emergency accommodation for clients with regard to their needs	3	The time required for the creation of a functional evacuation plan
	4	To conclude contracts on the provision of special means of transport	4	A major change in legislation
	5	Schedule the evacuation event at night		
	6	To raise awareness of this issue from the side of the fire service		

Chart 3 – SWOT analysis

Making plans of evacuation with social institution integration

In the individual zones (EPZ) of nuclear institutions, there are several social institutions that need to be evacuated in the case of an emergency. The basic scope of providing social help and support is established in Act no. 108/2006 Coll., on social services [15]. This incorporates the provision of services that are needed to socially integrate people and provide them with dignified treatment.

From the perspective of planning, social institutions have their pros and cons that need to be taken into account in the planning.

Positives: There are a large number of social institutions and we need to focus on those that provide accommodation. In the EPZ zones of nuclear institutions there are 10 such institutions. Every social institution has a good access road, which enables the arrival of buses and ambulances.

Negatives: Most of the institutions are senior care centres and centres for the handicapped. These institutions pose the biggest challenge in terms of evacuation; a large number of immobile clients and clients with reduced mobility. These form about 90% of clients in senior care centres. Individual social centres have a large number of immobile clients. Their evacuation requires specific methods of transportation. For the most part these are

clients confined to bed. All senior care centres and centres for the handicapped have about 134 wheelchair bound clients, which is about 19 clients per institution. Senior care centres and centres for the handicapped have 44 clients confined to bed. That is around 6 clients per institution. These clients require special transportation in order to get them to a place where they can get the necessary care. We cannot take them to an evacuation centre but to a medical or social institution. The number of workers during the day shift is around 13 people per institution, during the night shift it is 3 workers per institution, which is insufficient in the case of an evacuation, and additional workers are required to secure the evacuation. During the day shift one worker has to take care of 7 clients, during the night shift that rises to 30 clients. Most of the institutions are unable to evacuate by themselves. They need manual help during the evacuation (when there is a need to transport clients from the buildings). Evacuation during the night poses the biggest problem (when the institutions have a shortage of workers). Individual institutions do not have their own vehicles that they can use to evacuate clients. Most of the institutions need buses and ambulances. Buses can be used to transport mobile clients or wheelchair bound clients. In this case manual assistance is needed. Clients that are confined to bed can only be transported in ambulances. Individual institutions can be evacuated within 2 h but some institutions do not know how long they would need to complete an evacuation. They do not practice the evacuation, or if they do only on a small scale. In most cases the whole institution does not participate in a mock evacuation.

What not to forget in plans of evacuation

In the case of an evacuation of social institutions in the EPZ zones of nuclear institutions several factors need to be researched in order to perform an effective evacuation:

1. Numbers, location and types of social institutions. For the purpose of this research only institutions that fall under Act no. 108/2006 Coll., on social services [15]. In the EPZ zones of nuclear institutions, there are other social institutions that cannot be found in the register. These include nursing homes that fall under the Civil Code [17].
2. Maximum capacity of social institutions.
3. Numbers of immobile clients in social institutions (beds and wheelchairs) and their specific method of evacuation.
4. Research the possibility of putting immobile clients into different institutions outside the danger zone.
5. Numbers of workers who are capable of performing the evacuation during the day and the night shift.
6. Demand of additional help to evacuate clients (a large number of institutions are unable to perform the evacuation with their own resources).
7. Demand for additional vehicles.
8. Determine the number of required vehicles to perform the evacuation.
9. Determine the time needed to perform a full evacuation.

Conclusion

The plan of evacuation of social institutions and their preparation for emergency situations is not only problematic in the Czech Republic. As an earlier research has shown, it is necessary to pay more attention to this problem. Social institutions underestimate their readiness and in many aspects neglect it.

It is necessary to set up a system and create a functional model of the entire process, which will examine its current state and improve the approach of providers of social services in this field. Interconnecting the legislation between the providers of social services and legislation focused on emergency situations will be required. It will also be necessary to define the responsibilities of the providers of social services and authorities so they will ensure the preparation for emergency situations, allocate better funding for these services and execute tasks for protection of the general public (like authorities at state level planning do).

Conflict of interests

The authors have no conflict of interests to declare.

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