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## TRANSPORT PROVISION OF ANIMALS' EVACUATION

The negative impacts of emergency events affect the animals as well as the man. In case of emergency event the animals, unlike the man, have minimum chance to survive and majority of afflicted animals would perish without the human help. Animals' evacuation to secure place is one of the form of animals' protection against the effects of emergency events.

Animals' evacuation is the complex of legislative, organizing and logistic measures with aim to prevent their perishing and so eliminate possible occurrence of dangerous epidemiological situations and prevent damage occurrence.

The animals' evacuation is generally controlled by evacuation commission, which uses "Animals Evacuation Plan".

Time needed for the evacuated animal to leave the endangered place or stable is the next decisive factor of secure and speedy evacuation.

All types of transport can be used for transport of evacuated animals from endangered place. Loading and unloading the animals is very important part of evacuation. During the transport the driver has to observe certain specific principles of security journey with respect to transported animals.

Comprehensive animals evacuation is one of the conditions of their early rescue. Decisive role belongs to the man.

### INTRODUCTION

The negative impact of emergency events affects the animals as well as the man. During a fire, the animal can be scorched, burnt or smothered with toxic products; during a flood, it can be drowned or has no access to food; the hazardous substances leakage can cause its toxication. Each animal feels pain, suffers and usually responds to these impulses in an unexpected, way which also complicates the situation. Uncontrolled and unexpected reactions and movement of the animal can cause in the extreme the death of afflicted animal or even injury or killing the present people, other animals or property damage.

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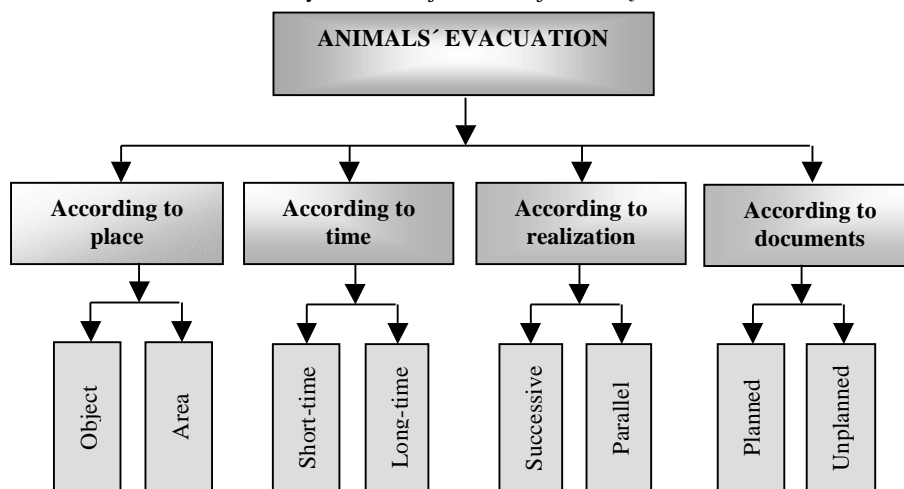
In case of emergency event the animals, unlike the man, have minimum chance to survive and majority of afflicted animals would perish without the human help. One of the basic duties of the man, in relation to the animals, resulting from legislation and also ethics is, as far as it is possible, to contribute to the rescue of the animals afflicted by emergency event. Animals' evacuation to a safe place is one of the form of animals' protection against the effects of emergency events.

## ANIMALS' EVACUATION

Animals' evacuation has to be understood as the extreme means for their protection. Animals' evacuation can be described as evacuation animals in danger from the object or territory afflicted by emergency event. The aim of it is to prevent their perishing and at the same time to eliminate possible occurrence of dangerous epidemiological situations and to prevent damage occurrence. Considering different aspects, such as time, place and similar, animals' evacuation can be divided into several groups.

Some aspects are given in figure 1.

Fig. 1. Kinds of animals' evacuation.  
Rys. 1. Rodzaje ewakuacji zwierząt.



Many circumstances determine the animals' evacuation. The first criterion is immediate threat of human life and health caused by emergency event and from this resulting time possibilities to carry out animals' evacuation too. The next important criterion for animals' evacuation is its importance for society in terms of its singularity, economic reasons and similar. Emotional attitude is important especially for domestic animals. When stating the rescue priority and so the evacuation, the animals are divided into these groups:

- brood farm animals,
- especially valuable farm animals and dairy cows,
- other farm animals,
- remaining animals.

All evacuation means, carried out for animals' rescue, have to be early, safe and speedy with use of minimum forces and equipment. The bases for selection of proper tactics for animals' evacuation are as follows:

- emergency event (kind, consequences and effect time),
- threatened object or place (state, size, quantity, length and state of evacuation ways),
- atmospheric conditions (winter, rain, temperature) and visibility (night, day),
- animals (quantity, breed, age category, state),
- people (quantity, qualification, experience in treatment the animals),
- means of transport (kind, quantity, technical condition, dimensions of cargo hold),
- transport cases (kind, state, dimensions, the way of locking during transport),
- driving regime (speed, relax),
- technical equipments to facilitate the work with animals (rescue, loading, unloading, state, way and place of location),
- personal protective working aids (type, quantity, state, emplacement),
- care of afflicted animals during evacuation (feeding, watering) and similar.

### STAGES OF ANIMALS' RESCUE

Animals' rescue and their subsequent evacuation present complex activities, which can be divided into three following stages (figure 2).

In the first stage the animals are saved (evacuated) from the threatened animal shelter (during fire, technical average of the object, dangerous substance - escape, flood and similar). The rescue is generally carried out by the owners (tenants) and tenders in close cooperation with members of integrated rescue system. With use of technical means they fetch out or ride the stricken animals from the threatened animal shelter.

In the second stage the animals are evacuated (moved) from areas in danger to the areas where their life and health are not endangered. This stage is generally solved by owners (tenants) in cooperation with bodies of the state and public administration. Driving the animals is basic displacement within ten (10) kilometers according to animals' condition (especially beef cattle, horses and sheep). Except the animals' driving the evacuation can be carried out with use of suitable means of transport or by combined way. Each used way has to prevent any suffering and injury of the animal. In this stage it is necessary to take into account the resting-place during the transport. Resting place is the place of transport stoppage assigned and fitted to rest, water and feed the evacuated animals. This place can be also used for the control of the state and behavior of evacuated animals.

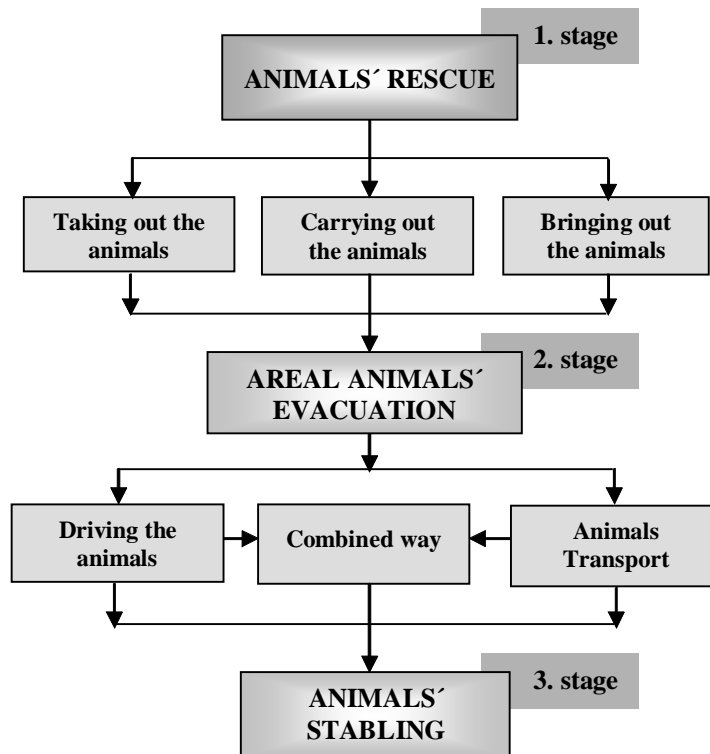
Third stage includes preparation of animal shelters, control and allocation of animals according to specified criteria (breed, age, sex, state). Within the stabling the animals are registered, fed, watered and eventually milked.

Security and proceeding speed are the basic requirements of each animal evacuation from endangered place disregarding the specific conditions.

Problems and danger during evacuation can be caused by:

- ill- worked out or inaccessible evacuation plan,
- bad weather conditions,
- heftiness of evacuated animal,
- shortage of convenient technical and transport means,
- low experience in treatment the animals,
- blocking up of escape and intervention ways by dead or injured animal and similar.

Fig. 2. Animals' evacuation ways.  
Rys. 2. Sposoby ewakuacji zwierząt.



### SOME REQUIREMENTS FOR ANIMALS' EVACUATION

Knowledge of legal, organizational, logistic, security, sanitary, veterinary and other measures is the basic assumption to fulfil the aim of animals' evacuation.

From the animals' evacuation point of view it is necessary to deal with these questions:

- number of animals according to individual kinds, categories, sex, age, state,
- lay-out and comprehensive security of the animals in each stage of their rescue,
- accessibility and location of technical equipments (cars, loading and unloading ramps, aids to make easier treatment and appeasement of the animals),
- possible animals behavior with emphasis on the properties and nature of individual kinds, categories, sex, age and state,
- veterinary and zoo-hygienic provision,
- the way of liquidation, if necessary, of badly wounded animals and their treatment,
- forces and equipments for carrying out the evacuation including the nurses of animals in consideration of their location during evacuation.

The animals' evacuation is generally controlled by evacuation commission, which uses "Animals Evacuation Plan".

Time needed for the evacuated animal to leave the endangered place or stable is the next decisive factor of secure and speedy evacuation. The shorter is the time, the more secure is the evacuation. Organized and speedy animals' evacuation is ensured by:

- sufficient number of physically capable persons providing the animals rescue,
- knowledge of security measures for treatment the animals,
- necessary number of suitable evacuation ways,
- sufficient number of the means of transport for animals transport
- sufficient number of devices for animals loading,
- sufficient number of equipments for liquidation of wild animals and similar.

Necessary number of persons carrying out the animals' evacuation has to correspond with kind, category and number of evacuated animals. Rescuers saving the animals are considerably more endangered than rescuers saving the people. Therefore it is necessary to calculate with more number of people. Security of people's work while saving the animals is a relatively complicated problem depending especially on kind, category, sex and age of the animal and supposing solution of entry and movement among the animals, treatment the animals and ensuring the transport security.

Action of the people carrying out the evacuation is influenced especially by:

- time necessary for saving the animals,
- practical experience in treatment the animals,
- psychical and physical condition of people,
- comprehensive provision for rescuers with emphasis on hygienic, health, social, catering and other provisions,
- sufficient number and accessibility of corresponding technical and safety means, aids (auxiliary tools, disinfecting agents, replacement mobile light source) etc.

## TRANSPORT OF EVACUATED ANIMALS

All means of transport can be used for transporting evacuated animals from the endangered place. The animals can be situated either on the loading area of the transport means (car, railway carriage) or in a suitable transport case (container, cage, tank) which have to be kept in a vertical position without vibrations and swings (they could cause the animal's fall). The total weight of transported animals including transport cases cannot exceed useful weight of the car. Means of transport and transport case have to be in accordance with next conditions (see figure 3).

Loading and unloading the animals is a very important part of evacuation, which has to be carried out as soon as possible, and without their stampede. Equipment used for loading (unloading) the animals (ramps, benches, bridges, platform) should have side barriers, non-skid flooring and should enable the animals the sufficient area for their movement ahead.

During the animals loading (unloading) it is necessary to respect safety measures:

- to secure loading ramps and bridges from animals skid,
- to load the big animals in front of the loading area,
- to separate big and small animals by wooden corral,
- to hold the horses and beef-cattle by sufficient long ropes,
- to carry out the loading and unloading the animals only by come to day light, to provide lighting at reduced visibility.

Loading area of the vehicle, semi-trailer, trailer (thereinafter vehicle) has to be adapted to the elimination of dynamic effects of the transport according to kind of transported animals. It has to be equipped with layer (minimum height 80 mm) of suitable litter (straw, sawdust, dry leaf, shavings). Sand, earth, clinker are not suitable for litter. Height of the walls above loading area ranges from 600 to 2100 mm. The vehicle has to be equipped with sheet to protect the animals against negative weather attacks.

After having loaded the animals need certain time to adapt to transport conditions. This adaptation can partially help preventing their stressed behavior during movement to new places.

Before and after transport the loading area has to be cleaned and disinfected. It is recommended not to feed the animals two hours before the transport. In case the transport takes more than eight hours, feeding and watering the animals has to be provided:

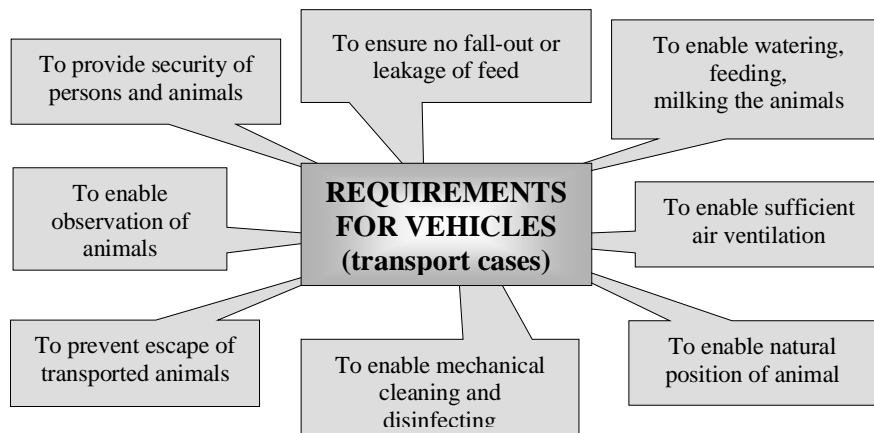
- on the basis of agreement with organization situated on the evacuation road or in the place of animals unloading,
- by use of special vehicles equipped with troughs, feeders and feed and water reserves.

Vehicles transporting the evacuated animals are necessary to be marked by title: "TRANSPORT OF LIVE ANIMALS" and mark indicating vertical animals' position.

Only cargo relating to animals transport and treatment can be transported together with the animals (harness, tools for care etc.).

During the transport, except strict observance of the law of the road the driver has to observe certain specific principles of security journey with respect to transported animals (continuous start, acceleration and braking, speed of drive adaptation to state of terrain and road). Otherwise the

Fig. 3: Requirements for evacuation vehicles.  
Rys. 3: Wymagania odnośnie do pojazdów ewakuacyjnych.



animal's movement can cause cross acceleration negatively influencing vehicle stability. Stability loss can result in traffic accident and also threat not only the driver and animals but also other persons, animals and property situated near crashed vehicle.

After animals unloading it is necessary to take off the dead animals from the vehicle and solve their speedy liquidation. Further to take off dirty litter, dung, excrements and thoroughly clean and disinfect loading area.

## CONCLUSION

Comprehensive animals' evacuation is one of the conditions of their early rescue. Decisive role belongs to the man. Persons owning or responsible for more animals should pay attention to their evacuation in case of emergency. The aim of the article was not analyze all factors influencing speedy and secure animals' evacuation in detail but only to mention possible solutions of some problems.

## REFERENCES

- [1] KLEPRLÍK J., *Organizace evakuace osob. In. Doprava. Ekonomicko-technická revue*, Year 44, č. 5/2002, p. 14, ISSN 0012-5520.
- [2] SEIDL M., *Logistika a krízové situácie. In: LOGI 2005, Institute of Jana Pernera o.p.s., p. 204, Pardubice 2005, ISBN 80-86530-27-2.*
- [3] SVENTEKOVÁ M., *Riziková analýza v dopravných systémoch. In: LOGI 2005, Institute of Jana Pernera o.p.s., p. 220, Pardubice 2005, ISBN 80-86530-27-2.*

## ZABEZPIECZENIE TRANSPORTOWE EWAKUACJI ZWIERZĄT

Negatywne oddziaływanie sytuacji kryzysowych w takim samym stopniu dotyczy zwierząt, jak i ludzi. Jednak w przeciwieństwie do ludzi zwierzęta mają w kryzysowych sytuacjach minimum szans na przeżycie i większość z nich zginęłaby bez ludzkiej pomocy. Ewakuacja zwierząt służąca zabezpieczeniu miejsca jest jedną z form ochrony zwierząt przed skutkami sytuacji kryzysowych.

Ewakuacja zwierząt stanowi zbiór środków prawnych, organizacyjnych i logistycznych mających na celu zapobieżenie ich śmierci i wyeliminowanie w ten sposób możliwego zagrożenia epidemiologicznego oraz uniknięcie wystąpienia szkód.

Ewakuacja zwierząt znajduje się generalnie pod kontrolą komisji ewakuacyjnej, posługującej się „Planem ewakuacji zwierząt”.

Czas niezbędny, aby ewakuowane zwierzęta opuściły zagrożony teren, zalicza się do kolejnych, decydujących czynników bezpiecznej i szybkiej ewakuacji.

W celu opuszczenia przez zwierzęta miejsca zagrożenia można wykorzystać wszystkie rodzaje transportu. Załadunek oraz wyładunek zwierząt stanowi bardzo ważną część ewakuacji. Podczas transportu kierowca musi przestrzegać określonych zasad bezpieczeństwa jazdy pod kątem transportowanych zwierząt. Pełna, odpowiednio zorganizowana ewakuacja zwierząt jest jednym z warunków ich ratunku. Decydująca rola należy do człowieka.