

DELIVERABLE D.T4.1.2

Report on the results from the pilot action 2 -
preparation strategies for the historic centre
in Austria

Draft

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Authors:

DUK (Anna Kaiser)





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I. PLANNING ACTIVITIES

1. Topic (main objective of the exercises):

Checking the suitability and effectiveness of the preparation strategies for the pilot site Krems-Stein in Austria.

2. Specific objectives:

- a) Checking the emergency system developed for the State Gallery Lower Austria
- b) Cooperation fire fighters and museum personnel
- c) Awareness of fire fighters / first responders for cultural heritage protection

3. Characterize the strategy being tested

The medieval city of Stein, today a part of the municipality of Krems, is mainly threatened by floods from the Danube. The preparedness strategy involves the mobile flood barrier which is raised by the fire brigades when the need arises and which worked very well so far. In case that the barrier should break or not be high enough anymore the water threatens the whole area of the medieval Stein as well as the chosen site of the State Gallery which might also suffer from a raised ground water level. The second line of defence against the Danube flood is just behind (NE) of the State Gallery, which therefore is not included. The State Gallery of Lower Austria houses the most important pieces of art from Schiele and Kokoschka to modern artists from Lower Austria. The paintings on exhibit below ground floor would ideally be already moved the moment it seems likely that the flood raises higher than the barrier, but an emergency recovery of prioritized objects, as would be the case during a fire, might also be necessary. Thus the developed strategy for the State Gallery includes route cards for fire fighters or any other emergency response unit that undertakes the emergency recovery of the objects.

The developed strategy against water is also valid for a crash evacuation of the most important objects due to fire. Thus both scenarios can be trained in one exercise.

Involved forces might be, depending on availability and the overall situation in the area, fire brigades, military, museum staff and (trained) volunteers.

4. Name and address of the place of exercise / pilot site:

State Gallery Lower Austria (Landsgalerie Niederösterreich)
Steiner Landstraße 1
3500 Krems an der Donau



5. Situation description:

For the pilot testing itself the mobile flood barrier is not erected, since the fire brigades are well exercised in erecting the barriers. The route cards developed for the museum basement floors which display highest-value paintings by inter alia Schiele and Kokoschka exist, the fire brigades have been trained on them, as have the museum personnel.

Involved entities are the local fire fighters and museum personnel.

6. Concept / assumption for exercises:

Water

The exercise situation is flood along the Danube which is likely to reach the limits of the mobile flood protection already erected; the water level is still rising very rapidly. A big tree transported by the Danube flood crashes into the mobile parts or the barrier erected in Stein, the water begins to flood out into the medieval part of the city and threatens to reach the State Gallery as well.

Hour	Description of the situation's development	Action taken	Other info
6 days before	Heavy rainfall in Germany and Austria led to immense flooding of the Danube. The rainfall still continues and the water level threatens to reach a level higher than the one in 2013, when the mobile flood barrier erected had to be reinforced by sandbags already.	Fire brigades, the Austrian Armed Forces in assistance operation, and volunteers have erected and fortified the mobile flood barriers as well as prepared the medieval city of Stein for potential flooding.	
Day x			
18:00 hrs	The intense rainfall continues, numerous heavy obstacles have already been brought down the Danube and passed Stein without causing problems to the mobile barrier, but now a big tree crashes into the mobile part of the flood barrier.	Fire brigades and police start evacuation of immediately threatened parts of Stein. Stein will be flooded, since the second line of defense erected by the fire brigades does not include Stein.	Information about break of barrier reaches museum as well.
18:00 hrs	The water starts to flood out of the river	Museum personnel start	The paintings are



	<p>basin immediately and rises ever higher.</p> <p>Hitherto the ground water level did not pose a threat to the museum, but with the increasing water level outside the museum is threatened.</p>	<p>with emergency procedure for crash evacuation of paintings below ground and on ground floor.</p> <p>Help from the fire brigades is requested.</p>	<p>brought to the upper storeys of the museum in order to keep them save from the water and to prepare them for moving out of Krems-Stein if it seems necessary / the moment it is clear if the museum will be damaged and how serious the damage is.</p>
18:30 hrs		<p>Fire brigade assists with specialist in crash evacuation of paintings on ground floor.</p>	

Fire

The exercise situation is fire in the State Gallery Lower Austria, either starting at the museum itself or spreading from surrounding buildings.

Hour	Description of the situation's development	Action taken	Other info
18:00 hrs	Fire starts in upper floor of the State Gallery Lower Austria.	Fire Brigades are alarmed, as is the police.	
18:15 hrs	First fire fighters and police arrive at the museum.	Fire fighting measures start. Police forces regulate traffic.	
18:30 hrs	Situation assessment allows fire fighters to recover high priority paintings in the basement floor.	High priority painting in basement floor are recovered by fire fighters.	Route cards are distributed according to priorities to fire fighters. After recovery paintings are brought to neighbouring building to



			be stored for the duration of the emergency. The high profile paintings are secured by the police.
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7. Planned forces and resources:

Forces and resources needed for the erection of the mobile flood barrier are not taken into account since this is a well rehearsed and functioning process that is not tested during the exercise. The focus of the exercise is on the cooperation between fire fighters and the museum personnel only, as well as on the testing of the developed strategy with the route cards for a crash evacuation. The crash evacuation is valid for both fire and water scenarios, therefore only one scenario, namely water, is tested.

No	Emergency responders	Vehicle / equipment	Number of equipment	Number of personnel
1	Museum personnel	Packing equipment for paintings stored in packing depot		2*
		Equipment of museum security on site	2	2
2	Fire Brigades Krems	Sand bags for barricading different openings on ground level of the museum	200**	8***
		Gloves for crash evacuation of paintings	16	8***

*) for the exercise, in an emergency situation six persons would be available from the very start and more could be requested / called in

**) not executed during the exercise

***) the fire fighters specialized in cultural heritage protection taking part in the exercise, during an emergency situation more might be available



Other entities to be taken into account for such a situation, but not included into the exercise:

- Austrian Armed Forces in assistance operation (which is usually the case during such extreme flood events)
- Police force
- (Trained) Volunteers

The way of alerting / informing emergency forces and resources:

Packing material for paintings and works of art is stored in depot inside the museum and readily available.

The fire brigades and relevant assistance forces are already in the area and alert. Contact is to be made by museum responsables in order to make sure that fire brigades also keep museum in mind when dealing with the flood situation.

8. Significant remarks regarding conducting exercises

Clear, dry weather, no complications.

Medical protection taken care of by fire brigade who come with their specialized vehicles and also by Danube University planning and conducting exercise as part of the annual Summer University Cultural Property Protection. In addition to that the museum security is aware of the exercise and can render medical assistance if necessary.

9. Ways and means of simulation:

The scenario is set during an initial briefing which also explains what is going to happen Danube-flood wise. The crash evacuation itself is prepared by a dummy painting put into the exhibition and the relevant route cards prepared for the said object. The fire fighters tasked with the crash evacuation after having been deployed to the aid of the museum are handed the route card, the security personnel of the museum makes sure that the fire fighters and museum personnel can work unobstructed on the evacuation.

10. Training briefing regarding involved organization and course of the exercises:

a) Date 12.07.2019, Time 18:00 hrs,

b) Whom it is directed to (participants):

Voluntary fire fighters Krems

In addition to the fire fighters who are briefed that day, museum staff is also present, not only during

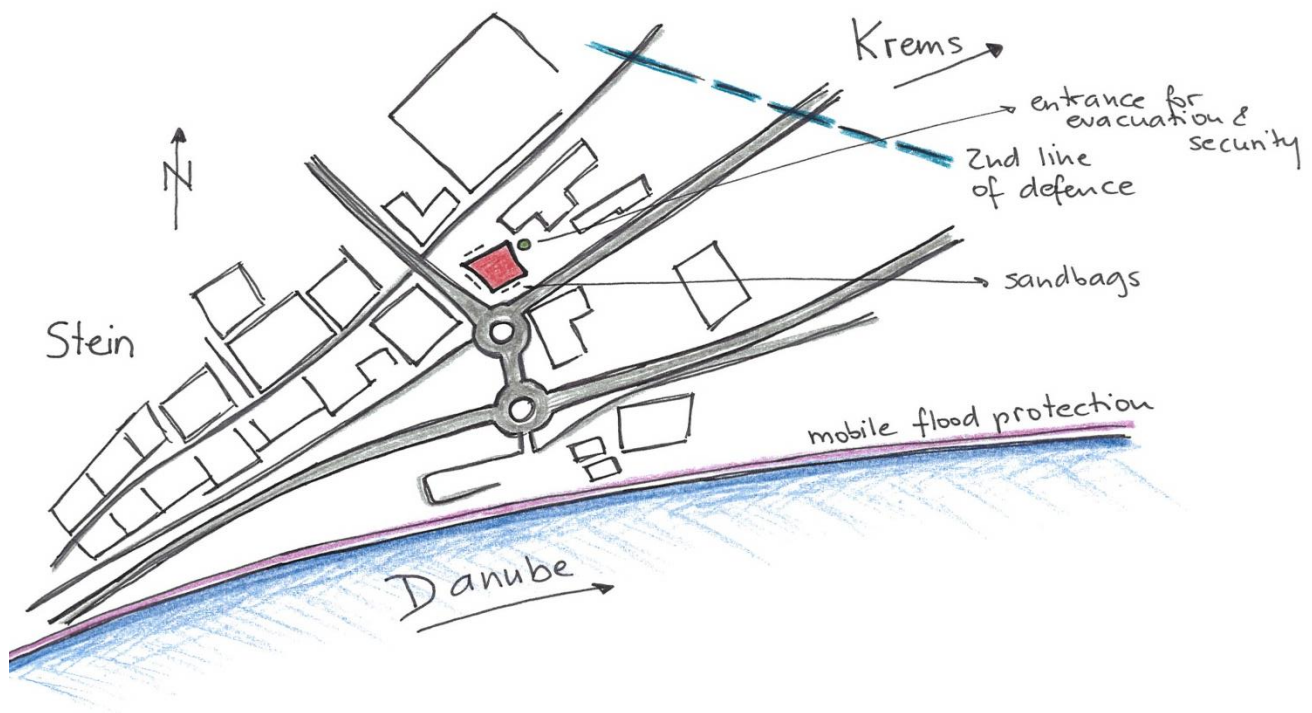
the said briefing, but also during the development of the emergency system for the museum during the whole week.

11. Date of the exercises:

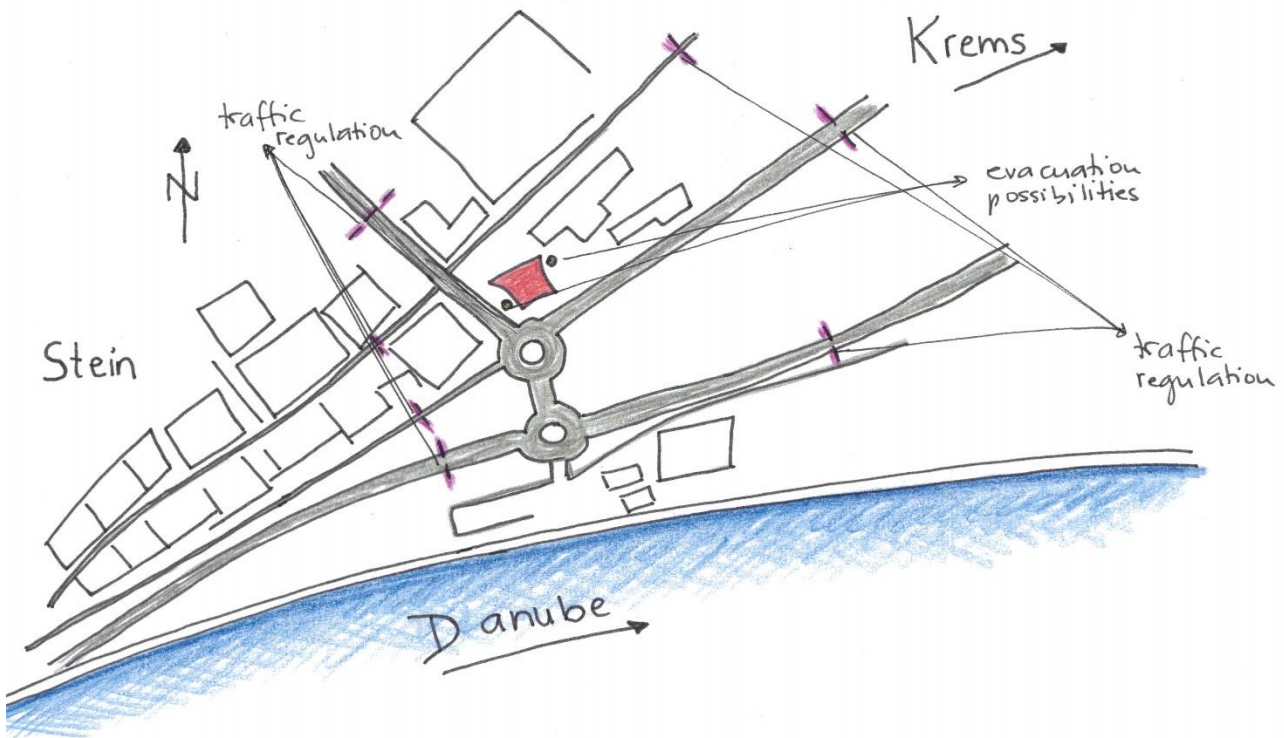
Date 12.07.2019, Time started 19:00 hrs, Time completed 19:30 hrs

12. A sketch of the situational area of the exercises

Water



Fire



13. List of functional persons of the exercises:

- Exercise manager - Anna Kaiser, Danube University Krems
- Head of the Rescue Operation - Gerhard Urschler, Fire Chief Krems



II. ANALYSIS OF EXERCISES

1. Notes on the implementation of the assumption

(compare the assumption with the actions taken during the exercise)

The three main objectives of the exercise were

- a) Checking the emergency system developed for the State Gallery Lower Austria
- b) Cooperation fire fighters and museum personnel
- c) Awareness of fire fighters / first responders for cultural heritage protection.

The overall assumption was that the system developed for the State Gallery Lower Austria would work and that the fire fighters and the museum personnel would work together, but further exercises were to be suggested, in order to improve the workflow in case of an evacuation. The awareness of the fire fighters was assumed high, since a similar exercise had already taken place.

In comparison to the assumptions, the following points can be highlighted:

- a) Emergency system that was developed for the State Gallery of Lower Austria followed the principles described in D.T3.1.2 and worked very well. Nevertheless further preparations should be undertaken, as well as further exercises with museum personnel and fire fighters / first responders in cultural heritage protection, see below “2. Assessment of the preparation of the place“.
- b) The cooperation between fire fighters and museum personnel is well established, also due to earlier exercises. A broader involvement of museum personnel and experts might be a suggestion for the future developments in this area.
- c) Since this was not the first exercise in cultural heritage protection for the fire fighters, they were as aware of the topic as assumed, including knowledge about the route cards and their handling, but see also below “3. Comments and final conclusions”.

Since the museum displays paintings and sculptures of immense significance and worth, the exercise could not take place under simulated circumstances like for example smoke. Thus the fire fighters were encouraged to simulate the effect of heavy smoke and heavy objects to evacuate, but this was only partially successful. The minutes timed for the evacuation of single painting thus is not reliable.

Otherwise everything worked as assumed, the weather was fine and dry, which also makes the output of the exercise not as reliable as foul and wet weather.

2. Assessment of the preparation of the place / facility in the event of a crisis situation

(possibilities and conditions for carrying out rescue operations)

The museum responsables had already prepared drafts in advance of the exercise and given lots of thoughts to the possible workflows in an evacuation scenario, thus the preparation of the place is ongoing. During the preparation and especially after the exercise suggestions for improvement were made. These include the establishment of an internal alarm chain and emergency plan, the nomination of an emergency coordinator, the definition of places where the objects can be evacuated to if necessary (depending on the type and scale of the emergency), the establishment of exhaustive priority lists and route cards for the most important objects.



The museum management is well aware of possible threats (water from the Danube or groundwater and fire). Prior exercises with the fire brigades had been undertaken. Packing material for the most important objects exists, but in the basement, which would mean that in case of threat by water the packing material itself would have to be evacuated to another floor as well.

The development and implementation of an advanced emergency preparedness plan would further enhance the gallery's preparation for a natural catastrophe. Further exercises together with fire fighters and possibly volunteers would rise the preparedness level as well.

3. Comments and final conclusions regarding the suitability and effectiveness of preparation strategies to crisis situations

(which information should be changed, corrected, added, etc.)

The suggested preparedness plans, which follow the outlines developed in ProteCHt2save, are fully functional for water and fire alike. Suggestions for further improvement were supplied to the State Gallery of Lower Austria, pending the implementation.

In order to spread awareness and knowledge on the sustainable and cost-effective preparedness measures developed in ProteCHt2save, the fire fighters suggested a further exercise, which could be made accessible to the most important stakeholders and the public. The latter was not possible in the exercise undertaken at the State Gallery of Lower Austria. A public exercise would also enhance the standing of the MoU to be signed at the end of the project.

The commander of the fire brigades totally agrees with the developed measures and wants to better prepare his special team by continuing training and exercises, including a training on material handling. Material

4. Impressions from the pilot testing exercise



Fig. 1: Briefing the fire brigade and the volunteers before the exercise starts. (Schramm, 2019).



Fig. 2 Briefing the fire brigade and the volunteers before the exercise starts. (Schramm, 2019).



Fig. 3: The fire brigade has been alarmed, they have been handed the route cards and enter the museum in order to evacuate the high-priority items. (Schramm, 2019).



Fig. 4: Evacuation of the high-priority items by the fire brigade. (Schramm, 2019).



Fig. 5: Handing over the high-priority item outside to building to the volunteers transferring it to a safe storage area before the items can be brought to their final storage. (Schramm, 2019).