

# DELIVERABLE D.T4.1.1

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Report on the results from the pilot action 1 -  
preparation strategies for the historic centre  
in Czech Republic

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## Contents

I. PLANNING ACTIVITIES.....	2
1. Topic (main objective of the exercises): .....	2
2. Specific objectives: .....	2
3. Characterize the strategy being tested .....	2
4. Name and address of the place of exercise / pilot site: .....	3
5. Situation description:.....	3
6. Concept / assumption for exercises: .....	3
7. Planned forces and resources:.....	4
8. Significant remarks regarding conducting exercises.....	5
9. Ways and means of simulation: .....	5
10. Training briefing regarding involved organization and course of the exercises: .....	5
11. Date of the exercises: .....	5
12. A sketch of the situational area of the exercises.....	6
13. List of functional persons of the exercises: .....	8
II. ANALYSIS OF EXERCISES.....	9
1. Notes on the implementation of the assumption.....	9
2. Assessment of the preparation of the place / facility in the event of a crisis situation .....	10
3. Comments and final conclusions regarding the suitability and effectiveness of preparation strategies to crisis situations .....	11
4. Impressions from the pilot testing exercise.....	12



## I. PLANNING ACTIVITIES

### 1. Topic (main objective of the exercises):

Testing and evaluation of the preparedness strategy for Troja Municipality. In particular:

- Briefing and evacuation plan for Trojan Horse Gallery, Prague.
- Flood protection measures for immovable artwork.

### 2. Specific objectives:

- a) Individuate responsibilities for decision making according to the relevant skills of the stakeholders;
- b) testing the use of the *CULTURAL HERITAGE RESILIENCE - Manual for owners*;
- b) set priorities and adequate response actions;
- c) train the evacuation of movable heritage and the implementation of preventive protection measures against flooding for large artifacts.

### 3. Characterize the strategy being tested

The foreseen strategy to be tested is composed of two main parts: the first one features the design of the evacuation plan, followed by a seminar/ plan briefing during which the dissemination of basic knowledge related to resilience building (e.g. exploiting the manual) and the individuation of the communication workflow, from the initial warning to the occurrence of the event, is carried out. Responsibilities and roles are defined as well as adequate response actions to be performed in different flood scenarios. The second part considers the implementation of the evacuation plan including rescue and preventive measures against flooding. Different stakeholders are involved. In the design phase the collaboration among managers, owners and local authorities (Municipality of Praha-Troja, National Heritage Institute, NGOs) results in a comprehensive and well-articulated evacuation plan encompassing all aspects of risk management from early warning to damage control and evacuation and proper



sheltering of people and heritage assets during the emergency phase. Finally, the implementation phase brings together the managing stakeholders together with rescue teams and civil society.

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

- Seminar/Crisis and Evacuation Center: Old school, Povltavská 23/38, 171 00 Praha-Troja, Czech Republic.
- Pilot site (evacuation/protection measures): Trojan Horse Gallery, Vodácká 1, 171 00 Praha-Troja , Czech Republic.

#### 5. Situation description:

In early December, three days of heavy rainfall (nearly 320mm) hit the areas surrounding the Bohemian Region causing a significant increase in the water level of the Vltava River. On December 11, at 9:00am, the alert status has been declared with the erection of temporary barriers in the center of Prague. Due to the persistent rainfall in the period 13-14 December, further actions are taken: considering the unbearable mass of water present in the reservoir upstream of the Vltava River and due also to the record levels in its tributary rivers, on December 16 at 3:00pm it has been decided the evacuation of the Trojan Gallery; at 16:00 the evacuation and safe storage of the artworks is carried out as well as the implementation of preventive measures for heavy objects which cannot be easily removed from the site. By 20:00 the operations are concluded. The next morning, on December 17 around 9:00, the area is completely flooded. An unprecedented river discharge of 5300 cubic meters per second is recorded.

#### 6. Concept / assumption for exercises:

The flood scenario assumed is similar to the event occurred in Summer 2002. The table below refers to the assumptions considered for the training exercise of emergency measures against flooding.



Hour	Description of the situation's development	Action taken	Other info
Early December 2019	Vltava River discharge at 400 cubic meters per second	-	-
10-12 December	First period of heavy rainfall (nearly 320 mm) upstream of the Vltava River. Rainfall from the cyclone focus on two areas: 1) near the Czech/German border in the Erzbirger Mountains and 2) in south Bohemia and northern Austria.	Alert	
11 December 9:00 am	The persistent heavy rain induces very high level of water in the river.	Fire brigades are reported. Preventive protection measures are implemented in the Central part of Prague in-situ.	Monitoring by Municipal District Office
16 December 12:30am	Information and warning about the increased danger	Warning SMS to owners along the river	Decision to evacuate the Site
16 December 3 :00pm		Meeting of the Flood Committee-Rescue Team	Contacting the Municipal District Prague 7, and Municipal police for coordination
16 December 4:00 pm	The water level continuously increases	Start of Evacuation of the site and safe storage of artwork	Arrival of the firebrigade and the moving trucks
17 December 9:00am	unprecedented river discharge of 5,300 cubic meters per second	Monitoring of the water levels and safety control of the new river banks	

## 7. Planned forces and resources:

No	Emergency responders	Vehicle / equipment	Number of equipment	Number of personel
1	Municipal District professionals	Truck / tools, tents, packing equipment for statues	1 truck / 5 sets	5
2	Sokol Troja	car	1	2
3	Flood Committee	Suitable personal equipment (following the D T3.2.1. recommendations)		6
4	Crisis Unit Prague 7	Communication		2
5	Municipal Police (Prague 7)	Equipped Vehicle	2	2
6	Fire brigade	Equipped Vehicle	1	5
7	Gallery owner	Volunteers, List of items, packing equipment for statues	5 sets	2



Other entities planned for exercise:

General public & citizens

High school students

Municipal office staff

The way of alerting / informing emergency forces and resources:

Municipality Website and social media

Mobile SMS

Email

Personal

### **8. Significant remarks regarding conducting exercises** (field conditions, occurring threats, medical protection, etc.)

Wet and slippery soil conditions / Cold weather.

Danger of object lifting.

Possible stop of electricity and running water.

### **9. Ways and means of simulation:**

Off-site briefing concerning the simulated flood scenario.

On-site simulation with selected real objects of art.

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

a) Date 11/12/2019 , 3:00 - 6:00 pm,

b) Whom it is directed to (participants): all participants as defined in sections 3 and 7 (table).

### **11. Date of the exercises:**

Date 16/12/2019 , Hour started 15:00, Hour completed 20:00.



## 12. A sketch of the situational area of the exercises

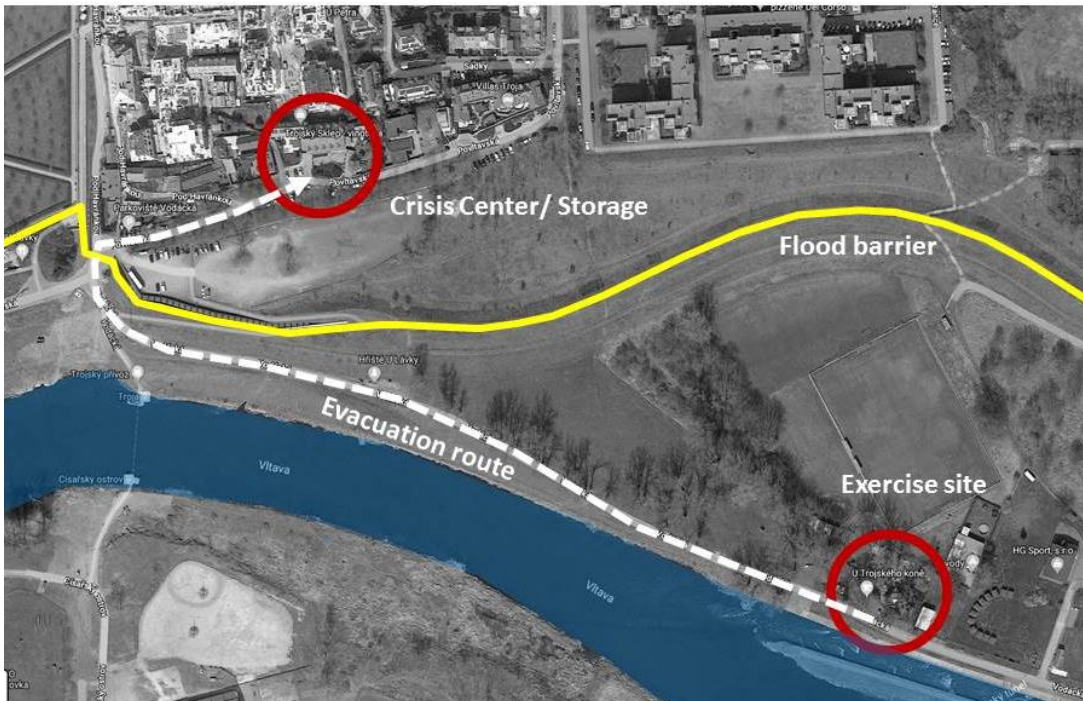


Fig. 1: Site plan and intended evacuation route



Fig. 2: Trojan Horse Gallery, Prague in June 2013 after flood





*Fig. 3: Adjacent structure with part of the exhibition.*



*Fig. 4: View of the main exhibition space under the horse*





*Fig. 5: Night view of the gallery*

### 13. List of functional persons of the exercises:

- Exercise managers - Tomas Drdáký (TROJA), Riccardo Cacciotti (ITAM),
- Head of the Rescue Operation - Tomáš Bryknar, Chief of Sokol Troja volunteers, members of Flood Committee



## II. ANALYSIS OF EXERCISES

### 1. Notes on the implementation of the assumption

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

The exercise carried out on December 16<sup>th</sup> 2019 aimed at testing and evaluating the preparedness strategy for Troja Municipality. In particular, the specific objectives set for the exercise were as follows:

- a) individuating responsibilities for decision making according to the relevant skills of the stakeholders;
- b) testing the use of the *CULTURAL HERITAGE RESILIENCE - Manual for owners*;
- c) set priorities and adequate response actions;
- d) train the evacuation of movable heritage and the implementation of preventive protection measures against flooding for large artifacts.

The assumed flood scenario and the corresponding planned actions to be taken throughout the development of the event were adequately observed and correctly implemented during the exercise. In this context, it is possible to highlight the following aspects:

- a) Responsibilities and roles were individuated during a briefing event coordinated by Troja Municipality at the beginning of the flooding event, just before the evacuation took place. It should be highlighted the importance of this step which determined the success of the exercise, fostering communication among different stakeholders and cooperation between rescue teams in-situ.
- b) The manual for owners proved to be a very effective tool for knowledge transfer and it helped in training rescue teams for appropriately implement preventive measures on site.
- c) Starting from the decision to evacuate the site to the implementation of rescue/preventive measures and safe storage of artwork, the workflow of the assumed operations went smoothly.

As final remarks, it should be underlined that a total of 29 people participated to the event. The exercise went as planned finishing on time, with enough material on site available for the evacuation. Nevertheless, the simulation slightly diverged from the real field conditions assumed for a number of reasons out of the control of the organizers (e.g. weather, soil conditions and high water level in river) and very complicated to be simulated. In addition, only a limited number of objects were evacuated from the gallery; therefore, the timing of the overall action as well as the pace at which evacuation operations were carried out is not representative of real scenarios. This



postulates also that the movements and necessary actions of the rescue team members on site are denser and faster in reality compared to the exercise. It has to be underlined that during the exercise it was flagged an excessive number of vehicles present on site, which should be reduced. Finally, it was not possible to simulate the presence of water on-site as well as the presence of wet/muddy slippery soil. The conditions of the site were not too rough, temperature was not too low and the rescue teams worked after darkness without bigger problems.

No	Emergency responders	Vehicle / equipment	Number of equipment	Number of personel planned/ present
1	Municipal District professionals	Truck / tools, tents, packing equipment for statues	1 truck / 5 sets	5/6
2	Sokol Troja	car	1	2
3	Flood Committee	Suitable personal equipment (following the D T3.2.1. recommendations)		6/3
4	Crisis Unit Prague 7	Communication, blankets for packing artwork	50	2/1
5	Municipal Police (Prague 7)	Equipped Vehicle	2	2/2
6	Fire brigade	Equipped Vehicle, lihts, ropes, first aid kit...	1	5/6
7	Gallery owner	Volunteers, List of items, packing equipment for statues	5 sets	2/3
8	Transport company	Truck for transport of the artistic objects	2	2
9	Camera/ video	Photography camera, digital camera with tripod, light	2	2
10	Project partner	ITAM CAS		2

## 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 evacuation exercise allowed evaluating the preparedness of the site in the event of a crisis situation. The Municipality of Troja is currently drafting possible solutions for an evacuation scenario especially addressing those facilities which fall outside the area involved by the territorial protection measure enforced after the 2002 flood (i.e. the flood barrier). For the sake of such evaluation, the Trojan Horse Gallery has been selected as pilot site. In the event of heavy rainfall, the gallery owner is aware of possible threats of flooding which may involve the artwork. The Municipality of Troja has enforced, for such events, the creation of a Crisis Unit which will closely monitor the development of the situation and coordinate evacuation and rescue operations. In addition, as far as the pilot site is concerned, packing material is available in case of evacuation for the most important objects and it is stored in a dry and safe space at the Town Hall

The preparatory and implementation phases of the exercise helped drafting suggestions for improvement of the site preparation. These include the development of an internal warning and emergency plan, the establishment of an emergency coordinator, the definition of safe spaces where the artwork can be necessary, the individuation of detailed item lists for relevant objects with related information concerning their priority and evacuation route. The development and implementation of an advanced emergency preparedness plan would further enhance the gallery's preparation for a natural catastrophe. It should be underlined that periodic exercises might be planned by the local authorities involving diverse groups of stakeholders (volunteers, firefighters, conservators, police etc.) aiming at increasing the level of preparedness at the site.

### **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 proposed evacuation plan for the Trojan Horse Gallery follows the guidelines and recommendations developed within the framework of the ProteCHt2SAVe project with particular links to the CULTURAL HERITAGE RESILIENCE - Manual for owners. As discussed in the previous paragraph, the plan proved to successfully improve the resilience of the pilot site, strengthening the communication ties among the relevant stakeholders and sharing the knowledge concerning artwork packing, evacuation and storage from professional to non-professional users. Nevertheless, the proposed evacuation plan will be updated according to the shortcomings flagged during the exercise including the individuation of responsibilities for decision making according to the relevant



skills of the stakeholders and setting of priorities and adequate response actions. The main points which resulted from the evacuation can be summarized as follows: reduce the number of participants to two groups of 8 persons; optimize the technical and transport vehicles support to 2 trucks; fire brigade may not be needed if additional lights and material and personnel can be provided by the Municipality; Municipal police need to be informed about the evacuation schedule for closure of the area for unauthorized persons; flood monitoring unit needs to design the sections and borders of each sub-unit (ca. 3 persons covering 3 km total length) Finally, the Municipality of Troja will discuss the updated proposal and enforce the evacuation plan as proposed in this exercise. The experience from the exercise will be included in the strategy at Municipal district and individual objects levels. Further training events, even with public engagement, may be organized in order to increase the awareness and knowledge on the sustainable and cost-effective preparedness measures among wider audience.

#### 4. Impressions from the pilot testing exercise



*Fig.6: Monitoring the development of the situation at the Crisis Centre*



*Fig.7: Briefing with the Municipal Police before entering the pilot site with trucks.*



*Fig.8: Arrival of packing material at the site.*





*Fig. 9: Exercise organizers checking the correct development of the exercise.*



*Fig. 10: Loading of packed artwork to be evacuated and stored at a safe location*



*Fig. 11: Packing and labelling station on site.*



*Fig. 12: Assembling boxes for evacuation of lighter objects.*





*Fig. 13: Rescue and stabilization of injured person.*



*Fig. 14: Participants to the exercise.*



*Fig. 15: Official closure of the event.*