



*Water Contingency Management in the Sava River Basin*

**Cluster 1 – Pilot table-top exercises  
simulating the incident and the  
response of transboundary accidental  
pollution**

**Output T3.1**

*(1/5)*

*(Report from Exercises simulating the incident and the response of  
transboundary accidental pollution in Zidani Most)*

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## 1 Introduction

This Output contains the activities carried out within the WACOM project work package T3 – “Verify joint preparedness and response – pilot implementation” aiming at the improved cooperation and interoperability among the emergency response authorities and stakeholders.

As stated in the work package title, the main objectives of the WP T3 is to verify the concepts and procedures used in different countries for coordination and response to emergency situations, e.g. accidental pollutions or floods on the Sava river.

In addition to that, the WACOM project proposed new procedures and the tool developed within the work package T2. These have been incorporated into the proposed contingency response plans. To verify usability and contribution of the proposed protocols, new response activities and tools, the practical experiment in the form of table-top exercises was conducted for five different scenarios, of which three were addressing accidental pollutions and two addressing floods.

The WP T3 is focused on the preparation, planning, execution, and analysis of tabletop exercise (TTX). This output integrates the entire process (preparation-execution-analysis) and in this form provides a comprehensive analysis of the performed work on the tabletop exercise: *Freight train derailment with accidental pollution in Zidani Most*. On the table top simulation exercise target groups, and especially headquarters from Slovenia and Croatia were participating, which took part in the transnational response at the table top exercise in Brežice. Together with the overall validation of the work of the WACOM project the output provides also recommendations for the standard training procedures for the transboundary multiagency incident response.

## 2 Table-top exercise objectives

The preparation and execution of the tabletop exercise have several objectives which can be divided into general and specific ones. The general objectives are dealing with the verification, utilisation, confirmation of existing protocols and procedures of response to emergency situation while other specific objects deal with the use and evaluation of the new WACOM tools used in the emergency situations. These objectives were discussed and defined during the preparation stage of the exercises.

## 2.1 General objectives of the exercise

General objective of the Table-top exercises (TTX) is to establish and to well define the framework for execution of the TTX with high level of potential replicability.

Verification of the existing protocols and practices based on the hypothetical accident scenario within the tabletop exercise represents provides ideal testing and educational environment for all actors (stakeholders) involved in emergency situations. The process starts with development of a hypothetical scenario of an accident. Based on the actual risks assessment, the stakeholders can build a theoretical case which will encourage them to utilize and verify all the existing emergency response procedures and learn from this experience. Using the existing written contingency plans they will be able to identify gaps in the practice and to discuss and consider new proposals and improvements aiming at future improvement of contingency plans and procedures.

Common methodology on preparation and execution of the TTX with the transnational scenario was prepared in the WACOM project in order to standardize the preparation, execution and analysis of the exercises. This is also framing collection of new information on the transnational challenges in the harmonisation of emergency procedures, information exchange, response to the event and status of preparedness on emergency situations.

## 2.2 Specific objectives of the exercise

Specific objectives of the exercise are focused to the testing of the new developed WACOM tools during the simulated emergency situations. The tools itself and its versatile use were evaluated from different perspectives, e.g. necessity (filling the gap in the existing tools - comparison to the existing tools and procedures), ease of use, availability during emergency situations, transnational use etc. The tools were introduced to the stakeholders who did, based on their experiences with existing procedures and this new proposed tool, gave critical opinion on further development and possible use of the tools in the real-life emergency events.

## 3 TTX documentation and T3 deliverables

The supporting documentation of the WACOM project was defined already with the application form of the project, in following the standardized approach towards the development of such exercises (i.e. NEMA guidelines, national guidelines). All documents in form of deliverables

were coordinated to allow for gradual project development in path to TTX planning and execution.

First deliverable D.T3.1.1. “Transnational target report and concept for implementation of pilot actions” is defining the main objectives, terminology and extent of the TTXs. Its main task is to set the conditions which define the hierarchy for the selection of pilot areas (what, where, why and who). The second deliverable which supports the TTXs is the deliverable D.T3.1.2. “Transnational map of pilot sites”. It is a document which defines the geographical locations of the simulated accidents of pollution and floods, including the main characteristics of individual location.

The scenario of the accidental event is described in the deliverable D.T3.1.3, “Descriptive documentation of pilot actions and related issues addressing accidental pollution and floods”, which in relation to the Transnational map in D.T3.1.2 describes the accidental event much more in details. It defines exact location, basic cause – triggering event of an emergency, anticipated effects, lists vulnerabilities and identifies and evaluates the scenarios for each PA and for later integration in contingency plans and verification by the table-top exercises. The D.T3.1.3 is prepared for each of five pilot actions separately.

The next step in development of the TTX is setting the response procedures. The “Methodology on preparation of accidental pollution/floods contingency plan development” is delivered in the document D.T3.2.1, while the five documents describing the actual contingency plan “Transnational accidental pollution /floods contingency plan for specific pilot action” in the deliverable D.T3.2.2. These contingency plans are joint response plans of all countries in which each particular accident occurs, i.e. in Slovenia, Croatia, Bosnia and Herzegovina, and Serbia.

Prior execution of the TTX, the “Guidance document on development of transboundary accidental pollution/floods table-top exercise”, is delivered in D.T3.2.3. It elaborates the methodology on the execution and preparation of the different types of staff-exercises and proposes the optimal type for meeting the WACOM project objectives.

The document, describing the execution of the TTX is the “Report on requirements and planning of tabletop exercise”, or detailed execution plan, D.T3.3.2. This is a document for the implementation and defines all details which are necessary for organisation and execution of the tabletop exercise.

The figure below shows the diagram of the sequence of preparation of documentation for the implementation and analysis of the table-top exercise.

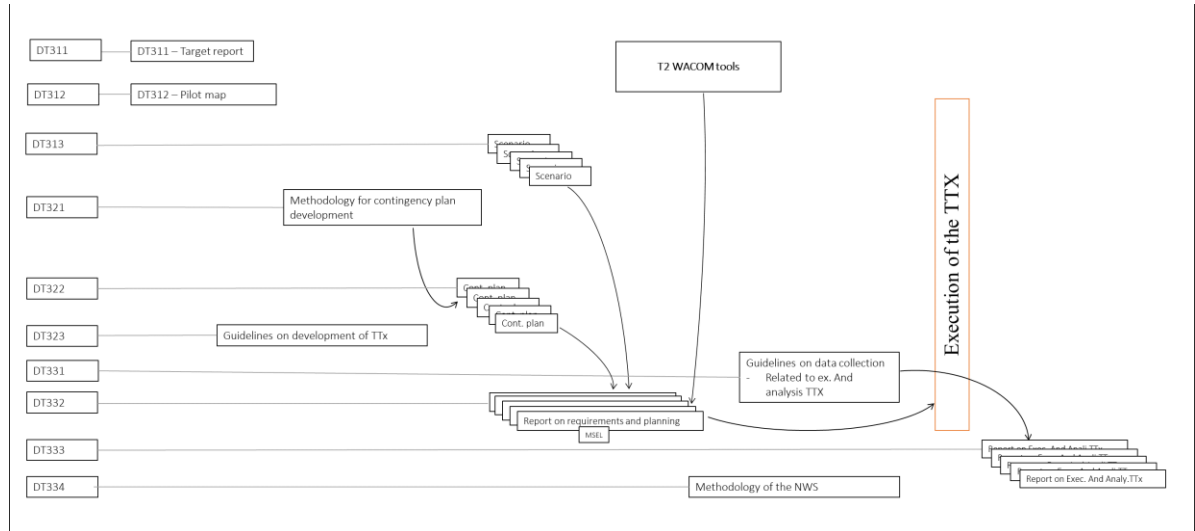


Figure 1: The sequence of the preparation of deliverable of the Task T3

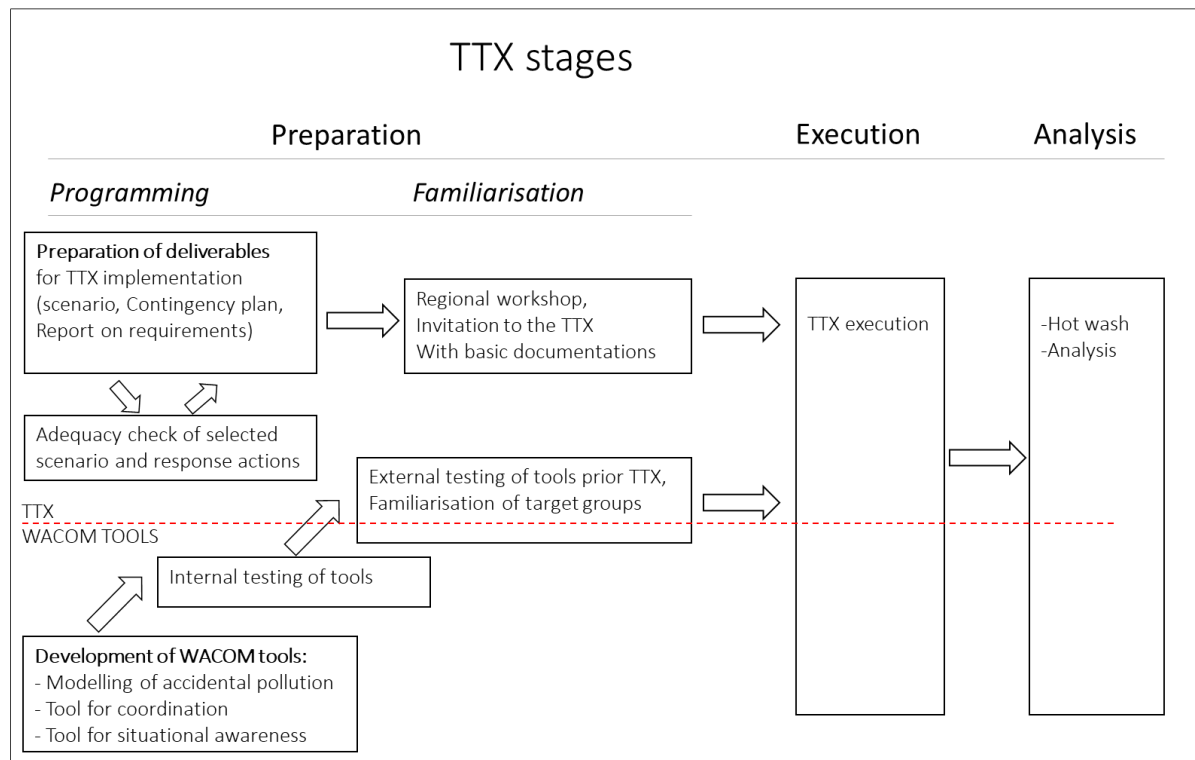


Figure 2: Stages in the TTX development and execution



### **3.1 Pilot map and Table-Top exercise scenario**

The document “Transnational map of pilot sites” describes the maps of pilot areas with potential hazards, risks, accident and other important details and facts that are crucial in the development of the table-top exercise scenario. The simulation of TTX considers the realistic scenario regarding the river flow, which will eventually affect the spreading of the oil slick – pollution downstream the river or floods. The term Pilot action (PA) refers to the processes, organization, activities, documentation, analyses, and other actions connected with the development and execution of the table-top exercise of the simulation of accidental events. Term “pilot” refers to the “one-time” or “first-time” execution and the “action” to the set of actions above that are required to be carried out by the project partners and other stakeholders within the table-top exercise (TTX). The pilot actions performed within the WACOM project represent the reference pilot cases, which can serve for further implication of developed approaches and methodologies to other areas, regions, countries or river basins. Pilot action includes scenario of the event with anticipated involvement of different entities in the response actions in terms of coordination, physical response, analyses of the event etc.

While the “Transnational map of pilot sites” elaborates several different locations of the accidental event (floods and accidental pollutions), each of the five descriptive documents D.T3.1.3 on the scenario about the accidental events (Descriptive documentation of pilot actions and related issues addressing accidental pollution and floods) describes the detailed background, conditions and set of circumstances that define the emergency event - accidental pollution in Zidani Most caused by a freight train derailment.



*Figure 3: Location of the Zidani most in the Sava River basin*

In general, the scenario first describes the anticipated impacts of the accidental pollution on the environment. Based on the basic physiochemical properties of the pollutant - diesel oil, several aspects of the general behaviour of the have been discussed. The oil slick, which represents the smooth and slippery surface of the oil on the top of the water causes further effects on the environment, wildlife and different aspects of the human life – anthropogenic vulnerabilities.

The location of the accident – railway junction in Zidani Most defines the area of oil slick propagation. Possible anthropogenic and environmental vulnerabilities are located along the river Sava, from Zidani Most towards national border with Croatia and also further downstream the river.

The scenario reveals specific location in Slovenia and Croatia which have been under more detailed investigation on the possible effects of the pollution. These are the protected natural areas, water abstractions from the river or from the river-influential area, ports, moorings, sports and recreational centres at and by the river, public infrastructure including hydro- and other types of powerplants that are indirectly. Identification of all vulnerable subjects have supported further development of the scenario, contingency plan and final Master scenario event list, which is part of the TTX detailed execution plan.

The scenario precisely describes the event of the accident, i.e. derailment of the freight train on the bridge in Zidani Most. Under assumption that there has been a major fault in the transport system, the derailment of the train caused that 10 freight wagons (60 m<sup>3</sup> each), full of oil got damaged, few of them fall into the river while all of them caused excessive leaks into the river Sava. It has been assessed that due to massive impact and damage 250 tons of diesel-oil (5 full wagons) leaked into the river in a very short period of time.

Under these conditions the further elaboration of the scenario has been carried out. The response of forces for protection and rescue has further been elaborated in the next deliverable – the contingency plan for the specific accident.

### 3.2 Contingency plan

Contingency plan is a document which has a major role defining the framework in organisational and response activities to the accidental events. Based on the risk analysis, some countries already obtain the major contingency plans that describe response to different kinds of accidents, as is the case e.g. in Slovenia, where the contingency plans for the train accident or the accidental pollution exist at different levels (state level, regional level, municipality level).

The purpose of this specific contingency plan, which is developed for the specific TTX is to compose a new joint document that combines the contingency plans for the two countries affected by the accident, Slovenia (Part A of the plan) and Croatia (Part B of the plan). The plans are based on the existing contingency plans, that are valid in individual country for particular kind of accident, railway accident with accidental pollution in Slovenia and pollution of river in Croatia. Since the contingency event reaches transnational level, first, the »Country level« contingency plans are utilized following with the lower-level plans (regional, municipality, institutional) which define the contingency plan contents more in details. This Contingency plan, which is developed for the purpose of the WACOM project, contains individual contents from all the existing plans as well as new proposals that arise from the WACOM project, i.e. utilisation of the developed WACOM tools in different areas of activities. For this reason, this contingency plan is utilised for the purpose of the WACOM project use only.

In the case of the train derailment in Zidani Most, the contingency plan includes the following topics:

- general description of the train accidents (risks, cause, types of accidents, safety in train traffic)

- concept of response to the train accident with accidental pollution,
- list of institutions involved in protection and rescue (State authorities, organisations, forces for protection, rescue, and relief)
- observation, notification, and alarming procedures (interagencies, public, transnational)
- activation procedures of forces for protection, rescue, and relief
- management of emergency events
- communication protocols
- protective measures during train accident with accidental river pollution
- etc.

The purpose of this document in connection to the TTX is to establish expected plan of response of individual unit, activation procedures, activities etc.

### **3.3 Guidance document on development of transboundary accidental pollution/floods table-top exercise**

Execution of the TTX follows some already established practices on the exercises. The “Guidance document on development of transboundary accidental pollution/floods table-top exercise” elaborates different types of exercises and proposes the most suitable one for the specific TTX with the specific goals.

As explained in the document, there are several types of exercises which differs on the complexity of the execution, who is participating, what types of events it simulates etc.

The specific exercise of the simulation of the train accident with the massive accidental pollution of the river Sava was executed as an international exercise (the influence of the pollution has spreads from Slovenia to neighbouring country – Croatia, which demands activation of response organisations in both countries) with the elements of the simulation-communication exercise or in other words the table-top exercise. The main role in the TTX was shared between the narrator, who leaded the TTX, presented the simulation, explained and guided the time-flow of events, and active participants, who represented the organisations/headquarters or forces who would take part in the response to the accident. Their role was to explain their physical actions, coordination, communication, and other activities they would perform during intervention.

### **3.4 Report on requirements and planning of tabletop exercise**

The document “Report on requirements and planning of tabletop exercise”, the deliverable D.T3.3.2 is the main document of the TTX “Zidani Most” which elaborates the execution and organisation of the TTX. It gives a detailed overview on the TTX topic, objectives, execution, venue description, organisational activities, list of organisations that should participate at TTX, templates for the lists of participants (active participants, headquarters, observers, evaluators), list of technical equipment and documents required for execution of the TTX as well as a detailed plans on the execution, role of individual participant and the master scenario event list - MSEL.

It defines the details of the execution of the TTX on the Accidental pollution due to the Train derailment in Zidani Most. This TTX was organised by the project partner HESS (Hydro powerplant on Lower Sava River) in the premises of the Youth Centre in Brežice. The schedule of the TTX event has been defined in the agenda, covering the introduction of the TTX, scenario description, introduction to the WACOM tools, procedure of the TTX execution as well as the analysis of the executed exercise.

In the report, the roles of individual participant are defined. The main role given to the narrator, which takes care of the leading the TTX, raising questions to the participants, opening discussions, giving the tasks, presenting, and demonstrating (with help of other staff) the new WACOM tools. There is also a description of the methodology on the exercise analysis, the hot wash, which is carried out just after the TTX. The hot wash was planned as an open discussion about the TTX, based on the predefined questions.

The MSEL – Master event scenario which is the detailed schedule of the simulated accident and of the response to the accident. It defines the activities of each active headquarter. The activities and organisational details are delivered in the tables and equipped with the time-stamps and descriptions of the interactions between participants (active headquarters). The MSEL in general defines the dynamics and the flow of the TTX.

## **4 Execution of the Table-top exercise in Brežice – Simulation of the Accidental pollution: Freight train derailment with accidental pollution in Zidani Most**

The TTX was carried out on the 12<sup>th</sup> of May 2022, in Brežice, Slovenia, in the premisses of the Mladinski center (Youth Centre). The place can accept several hundred participants while in

case of TTX and with the particular layout of space up to hundred participants. The ones who were actively involved in the headquarters were sitting at the same table which enabled better communication among members of the same headquarter. The passive participants, the observers were placed in the back of the hall.



*Figure 4: The participants of the TTX; active participants (at tables), observers (at the back)*

For the participants who were not able to join the TTX at the venue the on-line link (ZOOM) was established. However, it was not foreseen that the on-line participants cooperate in the active face-to-face communication. Nevertheless, they were able to leave the comments, ideas, etc. in the chat area of the on-line platform.

The TTX was chaired and led by the dr. Primož Banovec, representative of the lead partner of the WACOM project, University of Ljubljana. He introduced the scope of TTX, WACOM tools, to narrate the accidental pollution scenario and to encourage the intercommunication among all participants of the TTX at the high, professional level.



*Figure 5: The Narrator, dr. Primož Banovec (UL), conducting the TTX*

#### **4.1 Participants of the Table-top exercise**

The TTX was visited all together by 61 participants, 23 from project partners and 38 from external institutions representing the target groups. Detailed list of participants is given in the deliverable D.T3.3.3, Execution and analysis of the performed TTX, Appendix 3.

The participants formed several active headquarters as shown in the table below. Especially at the municipality level, the headquarters joined several institutions that form the multiagency headquarter. Some institutions form a single-agency headquarter.

*The active participants from Slovenia were from:*

- *Štab Civilne zaščite za Posavje in Center za obveščanje Brežice*
- *Direkcija Republike Slovenije za vode*
- *Občina Sevnica*
- *Civilna zaščita Občine Sevnica*
- *Policija*
- *Gasilska enota širšega pomena (GEŠP) Sevnica*
- *VGP Drava*
- *GEN Energija*
- *Hidroelektrarna na Spodnji Savi*

- *Termoelektrarna Brestanica*
- *Nuklearna Elektrarna Krško*

*The active participants from Croatia were from:*

- *Ravnateljstvo Civilne zaštite Republike Hrvatske*
- *Hrvatske vode*
- *Štab civilne zaštite Zagrebačke županije*
- *Grad Samobor i Zaprešić*

Beside the active participants and active headquarters, some participants took part in the TTX as the observers. Their role was to observe the development of the TTX, to participate in the survey (questionnaires) and to give comments if necessary. From Slovenia participated representatives from Cinkarna Celje, Komunalno podjetje Prodnik, MU Ljubljana – oddelek za ZIR, CZ Jesenice, Petrol, Občinska uprava občin Dolenjske and Občina Litija.

The observers from Croatia are the representatives of companies SCOTT BADER, JANAF, Tifon, HEP and from Bosnia and Herzegovina the representatives from RUCZ – Republička uprava za Civilnu zaštitu.

## **4.2 Introduction to the TTX**

The introduction of the TTX began with short explanation of the WACOM project, defining the main objectives and the course of the Project. Narrator, dr. Primož Banovec, introduced the purpose of the TTX relating to the WACOM project.

Following the introduction of the TTX, the active participants who play important role in the TTX scenario of the accidental pollution introduced themselves and briefly explained their activities and role in the emergency situations. Active participants were gathered in the improvised headquarters which operated as a single unit in the further actions of the TTX (reporting, measures, etc.).

The narrator proceeded with the initial information about the TTX and introduced the provisional methodology of TTX execution to all participants. He explained the role of participants, their tasks during TTX, and tools they will be using during the TTX, WACOM tool. To reach the transnational level of the TTX, the scenario of the accidental event foresaw the massive pollution which activated response units in both countries, Slovenia, and Croatia.



The scenario begins with the train derailment occurring in Zidani Most and causing leak of several tons of the diesel oil into the Sava River. The scenario description (part of deliverable D.T3.1.3) explains different kind of site conditions, including weather conditions, time and date of the accident, Sava River discharge, the amount of pollutant which will later leak into the Sava river and some other conditions of the accident. An important document, which is part of the scenario is the Master Scenario Event List or MSEL, which has been briefly introduced to the participants. MSEL defines the time-scheduled basic actions of all key response units and was a kind of a roadmap for execution of the TTX. The participants received the MSEL already with the invitation to the TTX, therefore most of them were already familiar with it.

### 4.3 New WACOM tools

During the TTX, the tool developers (staff from the lead partner of WACOM project) presented and demonstrated the use of the new WACOM tool that was used during the TTX. Although the first introduction to the tools was carried out already a week prior the TTX, not all participants of the TTX were familiarized with it. Participants gathered in headquarter groups utilised the mobile phones or laptops to login to the WACOM portal and to utilise the following tools:

- Tool for improving the coordination of activated headquarters,
- Tool for improving the situational awareness about the accidental event and
- Tool for improving modelling of the accidental pollution propagation.

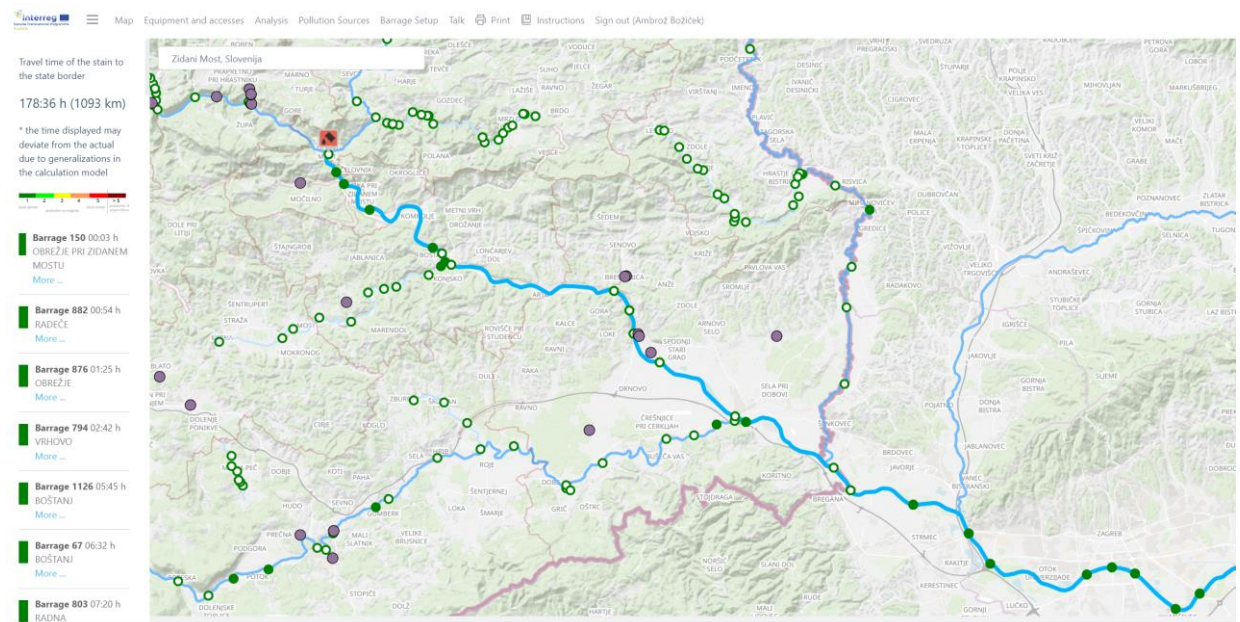


Figure 6: An example of the Transnational modelling tool use (Spill in Zidani Most, Slovenia)

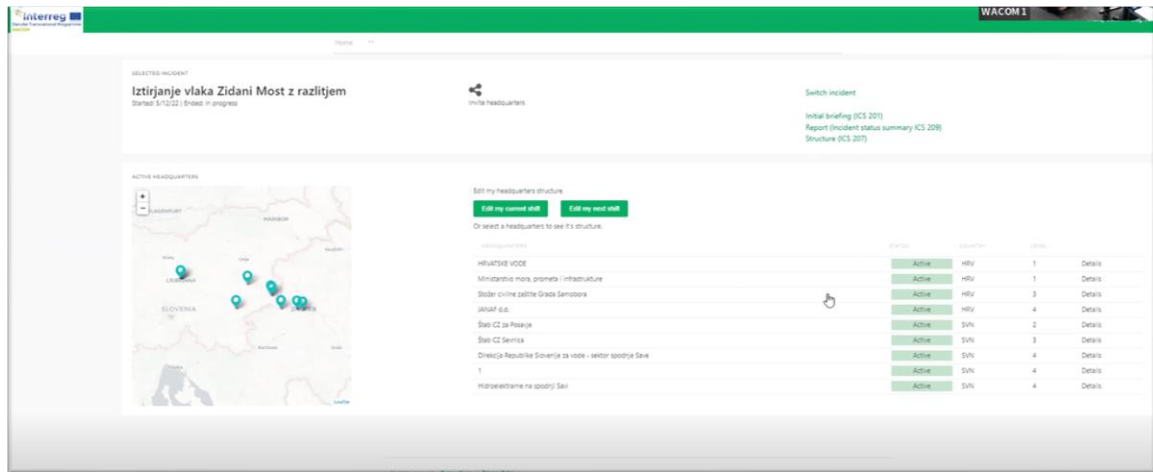


Figure 7: The situational awareness tool (list of headquarter, logged in the WACOM platform)



Figure 8: The example of the organisational structure of the headquarter (ICS 207)

Before the beginning of the simulation, participants were able to utilise the modelling tool, which gave them the insight to the expected propagation dynamics of the oil slick which propagated from the Zidani Most downstream the Sava River. On the bases of the slick dynamics the participants were able to identify the schedule and to assess their response actions and response location to perform mitigation of the oil slick propagation.

## 5 Execution of the Table-top exercise

The active part of the TTX began with the Activation of the TTX accidental event, which occurred exactly at 10:00 o'clock. This instantaneous moment mimicked moment when the train derailment occurs in Zidani Most, which would be at 20:00 on the 13.11.2022, as defined in the Master Scenario Event List (MSEL).

The MSEL is also the basis for all further communications, decision making and other actions performed by active participants.

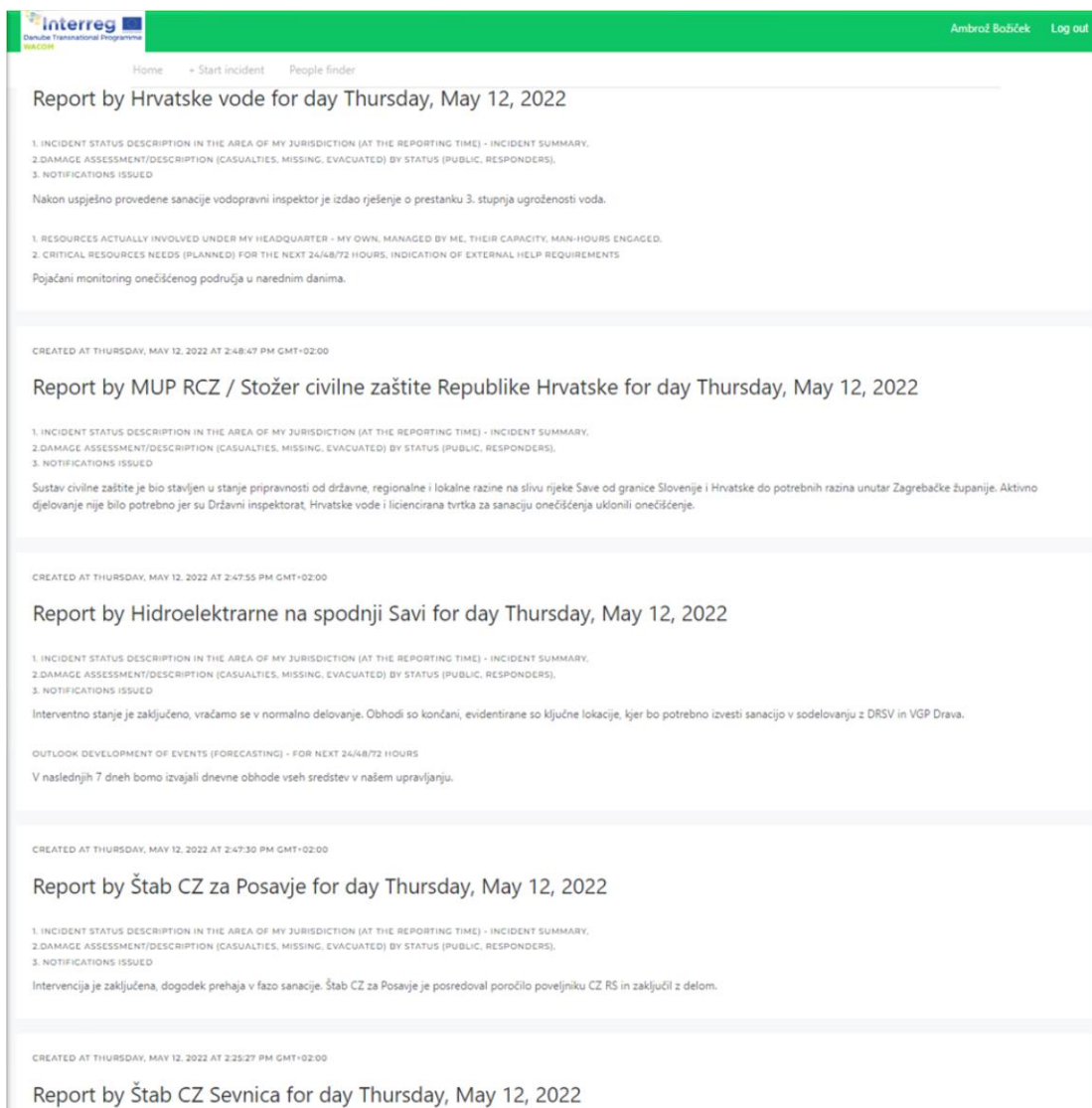
The TTX was carried out very interactively. During the TTX the narrator explained the current detail on the situation, including, the propagation and location of oil slick, identified vulnerable groups and other details which happened as a consequence to the accident and measures taken by participants.

The detailed description of the TTX procedures, actions taken and response of individual participants are gathered in the deliverable D.T3.3.3.

The TTX execution can be roughly divided into the following activities from which some were performed as simulations/predictions (S), some as discussions (D) and some as practical use of existing tools (e.g. WACOM tools, AEWS, etc.) (P):

- **(S): First notification to the 112** emergency centre in ReCO Celje and further on to ReCO Brežice.
- **(P): First use of the WACOM Incident coordination tool:** ReCO Brežice initialized the new accidental event, published the initial briefing report – ICS 201 at the platform and allowed all participants/headquarters to join the event at the platform
- **(P): Joining of all headquarters into the WACOM tool platform:** All participants grouped in the headquarters logedin in the WACOM platform – tools which enabled initialisation of the headquarter for particular accidental event.
- **(P): AEWS notification:** At 10:20, participants received the “test” notification from the AEWS (Accidental Emergency Warning System) about the derailment and pollution of the Sava river has been reported. The announcement of this notification was for the purpose of the TTX organized in advanced with the PIAC-SI, CORS (Slovenian notification centre)
- **(D) Discussion of all participants** about their involvement in the event. They explained how they receive the information about the accident, how they proceed with further notification of and how they respond.

- **(D) Planning stage after initial reporting;** narrator gave the explanation and the discussion followed on how to utilize the transnational modelling tool to assess the propagation time of the oil slick and to plan the activities of each headquarter and response groups.
- **(P) Introduction of the WACOM Incident coordination tool – ICS 207 and practical use.** The tool is used for sharing the information on the organisational structure of each Headquarter. This tool helps to establish better and easier communication among the headquarters.
- **(D) International Civil protection support,** as part of the actions that could be activated, was explained. International support between the Croatian and Slovenian Civil protection units was discussed. Croatia offered additional help regarding resources (material, staff) to stop the oil slick propagation at the location HPP Brežice (in Slovenia) and consequently to minimize the spreading of the oil slick to the Croatia.
- **(S) Status of the propagation** of accidental pollution: 12 hours after the accident, it was foreseen that all the response units have been activated and the oil slick reached the town Krško. Part of the oil slick was until then successfully captured upstream the river.
- **(D) Press release:** After dealing with the first operative measures, international help, techniques, strategies, the headquarters were engaged to prepare and present a sample of the press release.
- **(P) Reporting about incident summary ICS 209:** Using the WACOM Situational awareness tool, all headquarters published the incident summary report ICS 209 (Figure 9), which gives a daily overview about actions performed within the past operational period.
- **(D) Closing the incident and transition to remediation stage:** In the final stage of the TTX the participants were engaged to think about the transition to the remediation stage. After several experiences from the practice.
- **(P) AEWS notification:** the PIAC-SI CORS reported the end of the alarm/intervention at the AEWS system (Figure 10).
- **(S) closing the headquarters and activities on the accidental event:** After narrator's explanation about the results of the measures taken by all response units and headquarters, the event reached the end of the active response. Headquarters have now closed and the active part of the TTX was concluded.



The screenshot displays a web interface for reporting incidents. At the top, there is a green header with the Interreg logo and navigation links like 'Home', 'Start incident', and 'People finder'. The main content area shows a list of reports, each with a title, a summary, and a creation timestamp.

**Report by Hrvatske vode for day Thursday, May 12, 2022**

1. INCIDENT STATUS DESCRIPTION IN THE AREA OF MY JURISDICTION (AT THE REPORTING TIME) - INCIDENT SUMMARY.  
 2. DAMAGE ASSESSMENT/DESCRIPTION (CASUALTIES, MISSING, EVACUATED) BY STATUS (PUBLIC, RESPONDERS).  
 3. NOTIFICATIONS ISSUED

Nakon uspješno provedene sanacije vodopravni inspektor je izdao rješenje o prestanku 3. stupnja ugroženosti voda.

1. RESOURCES ACTUALLY INVOLVED UNDER MY HEADQUARTER - MY OWN, MANAGED BY ME, THEIR CAPACITY, MAN-HOURS ENGAGED.  
 2. CRITICAL RESOURCES NEEDS (PLANNED) FOR THE NEXT 24/48/72 HOURS. INDICATION OF EXTERNAL HELP REQUIREMENTS

Pojačani monitoring onečišćenog područja u narednim danima.

CREATED AT THURSDAY, MAY 12, 2022 AT 2:48:47 PM GMT+02:00

**Report by MUP RCZ / Stožer civilne zaštite Republike Hrvatske for day Thursday, May 12, 2022**

1. INCIDENT STATUS DESCRIPTION IN THE AREA OF MY JURISDICTION (AT THE REPORTING TIME) - INCIDENT SUMMARY.  
 2. DAMAGE ASSESSMENT/DESCRIPTION (CASUALTIES, MISSING, EVACUATED) BY STATUS (PUBLIC, RESPONDERS).  
 3. NOTIFICATIONS ISSUED

Sustav civilne zaštite je bio stavljen u stanje pripravnosti od državne, regionalne i lokalne razine na slivu rijeke Save od granice Slovenije i Hrvatske do potrebnih razina unutar Zagrebačke županije. Aktivno djelovanje nije bilo potrebno jer su Državni inspektorat, Hrvatske vode i licencirana tvrtka za sanaciju onečišćenja uklonili onečišćenje.

CREATED AT THURSDAY, MAY 12, 2022 AT 2:47:55 PM GMT+02:00

**Report by Hidroelektrarne na spodnji Savi for day Thursday, May 12, 2022**

1. INCIDENT STATUS DESCRIPTION IN THE AREA OF MY JURISDICTION (AT THE REPORTING TIME) - INCIDENT SUMMARY.  
 2. DAMAGE ASSESSMENT/DESCRIPTION (CASUALTIES, MISSING, EVACUATED) BY STATUS (PUBLIC, RESPONDERS).  
 3. NOTIFICATIONS ISSUED

Interventno stanje je zaključeno, vraćamo se u normalno delovanje. Obhodi so končani, evidentirane so ključne lokacije, kjer bo potrebno izvesti sanaciju v sodelovanju z DRSV in VGP Drava.

OUTLOOK DEVELOPMENT OF EVENTS (FORECASTING) - FOR NEXT 24/48/72 HOURS

V naslednjih 7 dneih bomo izvajali dnevne obhode vseh sredstev v našem upravljanju.

CREATED AT THURSDAY, MAY 12, 2022 AT 2:47:30 PM GMT+02:00

**Report by Štab CZ za Posavje for day Thursday, May 12, 2022**

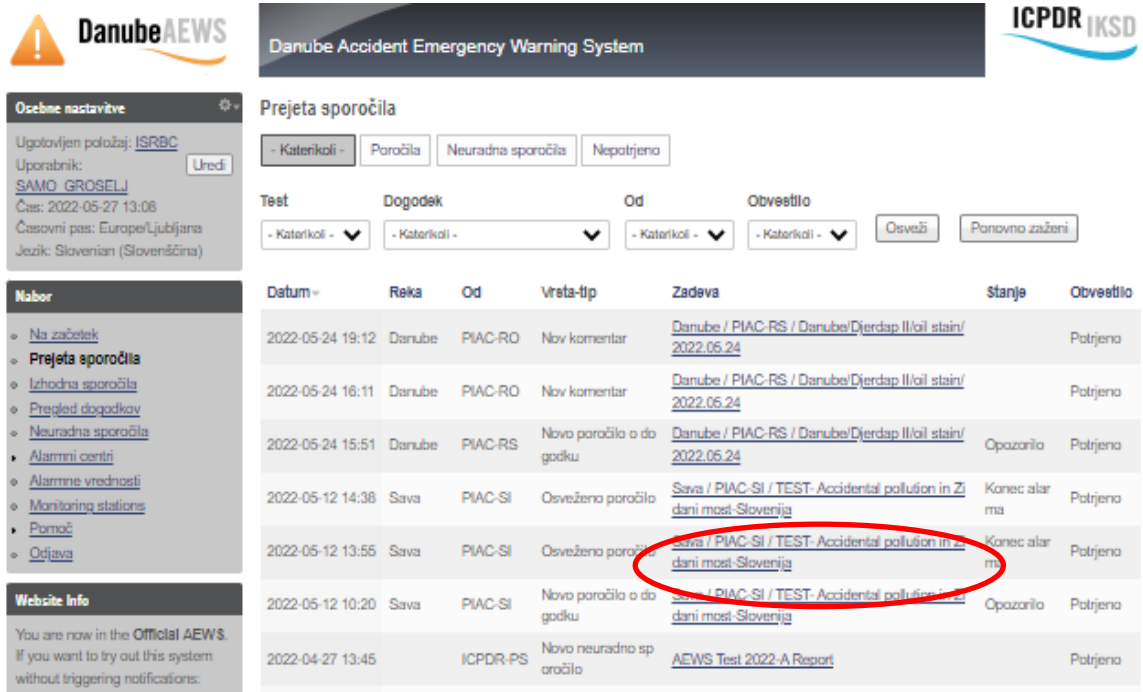
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Intervencija je zaključena, dogodek prehaja v fazo sanacije. Štab CZ za Posavje je posredoval poročilo poveljniku CZ RS in zaključil z delom.

CREATED AT THURSDAY, MAY 12, 2022 AT 2:25:27 PM GMT+02:00

**Report by Štab CZ Sevnica for day Thursday, May 12, 2022**

Figure 9: The example of the Incident summary report (ICS 209) of different headquarters engaged in the TTX



**DanubeAEWS** Danube Accident Emergency Warning System ICPDR IKSD

**Osebnе nastavitve**  
 Ugotovljen položaj: ISRBC  
 Uporabnik: SAMO GROSELJ [Uredi]  
 Čas: 2022-05-27 13:08  
 Časovni pas: Europe/Ljubljana  
 Jezik: Slovenian (Slovenščina)

**Nabor**  
 Na začetek  
 Prejeta sporočila  
 Izhodna sporočila  
 Pregled dogodkov  
 Neuradna sporočila  
 Alarmni centri  
 Alarmne vrednosti  
 Monitoring stations  
 Pomoč  
 Ojjava

**Website Info**  
 You are now in the Official AEWS.  
 If you want to try out this system without triggering notifications:

**Prejeta sporočila**  
 - Katerkoli - Poročila Neuradna sporočila Nepotrjeno

Test Dogodek Od Obveščilo  
 - Katerkoli - - Katerkoli - - Katerkoli - - Katerkoli - [Osveži] [Ponovno zaženi]

Datum	Reka	Od	Vrsta-tip	Zadeva	Stanje	Obveščilo
2022-05-24 19:12	Danube	PIAC-RO	Nov komentar	<a href="#">Danube / PIAC-RS / Danube/Djerdap II/oi stain/ 2022.05.24</a>		Potrjeno
2022-05-24 16:11	Danube	PIAC-RO	Nov komentar	<a href="#">Danube / PIAC-RS / Danube/Djerdap II/oi stain/ 2022.05.24</a>		Potrjeno
2022-05-24 15:51	Danube	PIAC-RS	Novo poročilo o dogodku	<a href="#">Danube / PIAC-RS / Danube/Djerdap II/oi stain/ 2022.05.24</a>	Opaznilo	Patrjeno
2022-05-12 14:38	Sava	PIAC-SI	Osveženo poročilo	<a href="#">Sava / PIAC-SI / TEST-Accidental pollution in Zidani most-Slovenija</a>	Konec alarma	Patrjeno
2022-05-12 13:55	Sava	PIAC-SI	Osveženo poročilo	<a href="#">Sava / PIAC-SI / TEST-Accidental pollution in Zidani most-Slovenija</a>	Konec alarma	Patrjeno
2022-05-12 10:20	Sava	PIAC-SI	Novo poročilo o dogodku	<a href="#">Sava / PIAC-SI / TEST-Accidental pollution in Zidani most-Slovenija</a>	Opaznilo	Patrjeno
2022-04-27 13:45		ICPDR-PS	Novo neuradno sporočilo	<a href="#">AEWS Test 2022-A Report</a>		Patrjeno

Figure 10: The notification about the end of the alarm for the Accidental pollution in Zidani Most in the AEWS

## 6 Analysis of the Table-top exercise – Hot Wash

The first analysis of the performed TTX, the Hot wash, was carried out just after TTX execution by all participants. It was based on the predefined questions allowing each headquarter to give the evaluation of the TTX.

The main conclusions and findings of the participants were the following:

- TTX is kind of a training that is performed as a simulation and there are no real circumstances. This enables prudent and calm operation and consolidation of set protocols.
- From an organizational point of view, the TTX was a success, as all actors were aware of their duties and were current and actively involved in accordance with the scenario. Regarding the content of the TTX, the key finding is that the scenario is realistic - that is, a situation that can actually happen.
- The essential general importance (outside of WACOM) of TTX is that organizations and actors working in the field in the event of an accident get to know how other organizations work. Even in the case of this TTX, this positive effect was perceived. For participants the TTX was an invaluable experience.
- at this TTX it was possible to get acquainted with new content and tools that can help in future interventions. Attendees praised and supported the tools, the design of which is sensible and high quality.
- Unification as a necessity was perceived in several segments of the TTX. It was clear that individual organizations are not familiar with the operation of other institutions and their equipment. There was no comprehensive coordination at the start, and during the staff exercise, the gradual coordination of institutions with each other was noticed, which is a great value of this TTX in general.
- The experience of individual institutions involved at disaster interventions is that information, protocol and communication culture (between different headquarters) are key to effective fieldwork. The tools provided by WACOM represent a range of information and enable protocol and culture in communication.

In the analysis there were only few shortcomings of the TTX. The main one explains that:

- not all institutions involved in the event of an accident were present. For a really good acquaintance and comprehensive operation, it would be good if there were several institutions present, which this time unfortunately did not respond to the invitation to the staff exercise.

## 7 Analysis of the Table-top exercise – the survey

Another analysis of the TTX was performed through the survey. The questionnaires were prepared for the participants and the evaluators.

The questionnaire for participants had a total of 15 questions, and in total of 41 participants completed a questionnaire. Some questions inquire about the situation in the country therefore sometimes the analysis is separated for Slovenia and Croatia. The details on the answers can be found in the deliverable D.T3.3.3.

The main findings of the survey are that:

- 97% of participants agree that new protocols and tool for emergency situations must be tested within such exercises,
- Almost half of participants think that there are some important participants (institutions) missing at the TTX,
- The average grade on the TTX on a scale 1 to 5 is 4.
- The materials (documentations, tools etc.) presented at TTX meet the expectations of 92% of participants,
- Around 80% of participants think that the topic of the TTX is sufficiently elaborated.

The questions tackled also the existing practices in response, communication and access to the information on the headquarter organisations. Through the survey it is established that:

- Croatian participants have in average better access to the data on the headquarter organisation, management structures than the Slovenian participants, (access to data have 30% participants of Slovenia and 70% of Croatia),
- The quality of data is assessed to 3,5 (scale 1 (bad)-5 (good)),
- Availability of data on the headquarter activities during interventions is better assessed to 2,9 in Slovenia and 3,6 in Croatia,
- 77% of participants declared that they often communicate with other headquarters during interventions, but the communication is more often among the Croatian participants,
- In average 50% declared that there has been a situation where it was difficult to establish communication between the headquarters.



Based on the questions that tackled the usability of the WACOM platform it has been established that:

- Almost 90% find the new WACOM platform useful for establishing better communication among headquarters and that it would make it easier to operate during interventions.
- The new WACOM tools were in average assessed with the grade 4,3.

The questionnaire for the evaluators showed that:

- that purpose and goals of simulation of TTX were fully understandable, and that participants fully understood the tasks and objectives of the TTX,
- they assessed the MSEL with the grade 4 (scale 1 (worse)-5 (best)).

Based on the comments we can make a conclusion that the scenario and the master scenario event list were well prepared and praised the introductory workshop about the WACOM tools which took place one week before the TTX. Nevertheless, the explanation of the Contingency plan and practical training for the WACOM tools could be performed at the TTX.

The assessment of the TTX process was evaluated as understandable and well done. Narrator's role during the TTX was assessed in average with the grade 4,5. Evaluators also agreed about the role of active participants as it was well done. Events from the master scenario were well conducted, so timeline was easy to follow.

The questions about platforms' tools gave the average grade 4,5. One comment was also on the assessed quality of communication among the active headquarters during the exercise which was assessed with grade 3.

## 8 Findings and conclusions of the Table-top exercise (lessons learned)

Development and execution of the table-top exercise (TTX) was one of objectives of WACOM project not just to test the usage of WACOM tools but also to verify, utilise and confirm existing protocols and procedures of response to emergency situation. These objectives were successfully reached at the TTX.

General objective of the WP T3 was to establish and to well define the framework for execution of the TTX with high level of potential replicability and to gain and share valuable experiences received during development and execution of the TTX. Based on the further four (4) implementations of the TTX, two in Slavonski brod and two in Brčko that followed the TTX in Brežice, the replicability has been proven and the findings from all 5 TTXs shared within WACOM deliverables and output reports.

In relation to the specific objectives of the TTX (to test the new WACOM tools), the feedback received at the TTX was encouraging. The tools themselves have been well accepted by the TTX participants, stakeholders who evaluated its versatile use from different perspectives. TTX enabled to develop critical discussion about the tools, supported by the stakeholders' experiences with existing procedures, and to give a critical opinion on further development and possible use of the tools in the real-life emergency events.

The analysis of the success of WACOM TTX was carried out in different aspects by different institutions and from different points of views.

### **Finding from the Hotwash:**

First analysis of the performed work was carried out at the Hotwash that represented first retrospective moment in the TTX and a mental exercise regarding the success of the conducted TTX. The participants critically reflected on all the steps of the TTX and assessed whether any of the steps taken were performed poorly, where they perceived problems, what they lacked and what was done well.

First conclusion was that from an organizational point of view, the TTX succeeded very well since it was performed smoothly, continuously and in accordance with the set simulation of the development of the pollution event. That means that the participants knew their duties and tasks and that they participated proactively. The exercise was thus successfully brought to a conclusion, which represented the moment in the simulation when the rehabilitation of the

consequences (damage evaluation and activities to restore the original state of the river) began.

The participants expressed their satisfaction and praised the TTX and explained that such events are useful for two reasons:

- For testing their own understanding (within an individual organization) of what happens in the event of an accident which enables them to improve internal protocols.
- For perceiving information of other institutions and their protocols, which enables all institutions involved in emergency situation better collaboration and the recognition what advantages individual organization has. The latter enables the disaster response manager to distribute tasks according to the specialization of each institution, which makes the disaster response more efficient.

In this way, the staff exercises helped to organize more effectively all the existing institutions who work in the field in the event of an accident, while at the same time informing the wider society and potential stakeholders about the activities that take place in the event of an accident and in what way an individual organization can get involved either only at the level of information flow or also at the level of active action in the field.

### **Findings from the survey**

Second point of TTX analysis was the survey. WACOM partners prepared questionnaires for participants and evaluators. The questionnaire contained a combination of questions to obtain information from different countries and the problems they face in their disaster responses. It was designed in such a way that respondents gave answers both for their own country (in-depth insight) and for another country (external insight). This cross-information made it possible to process the acquired data in such a way that the tools developed within the WACOM were adapted to the objective requirements of all the countries of the Sava basin, and at the same time will enable integration into specific protocols within each country.

Based on the questions that addressed the usability of the WACOM platform, it was found that:

- Almost 90% believe that the new WACOM platform is useful for establishing better communication between headquarters and that it would facilitate operations during interventions.

- The new WACOM tools were rated an average of 4.3.

### **General conclusions**

Based on the analyses and the work that has been done during the preparation, execution and post-execution stage of the TTX in Brežice, some general conclusions can be states as:

- The main objectives of the TTX were reached – the TTX was successfully executed, the tools were tested within the imaginary scenarios of disasters and several institutions and the target groups were actively involved in the TTX. Target groups got familiar with the new WACOM tools and cooperated in the tool assessment.
- All participants find that such TTXs are very important for effective response in the event of an accident.
- Most of participants agreed that there are absolutely too few such staff exercises, and some that this was the first staff exercise they had participated in.
- Most often, exercises are organized as practical field exercises, which is not comparable to staff exercises because:
  - In field exercises, several actors are rarely present.
  - Field exercises are intended to train a specific physical response.
  - A general approach to disaster response is lacking in field exercises.
  - There is a lack of understanding in which areas the individual institution is weak and which other institution could do the job better.
  - Interdisciplinary and inter-institutional communication is not trained.
  - Control of a wider area is not trained, which is a reality in the event of an accident.
  - Field exercises are intended for a group of operatives who must perform a specific task on a specific area, but has limited value for training the organization as a whole.

Other general conclusions related to execution of the TTX are as follows:

- To get familiarised with the execution of the TTX, preparatory documentation should not be too extensive. It should briefly describe the purpose of the TTX and role of individual participants. In such way, the participants can focus on the topic of the TTX and role of their institution before attending the TTX, which would minimize the delays during the TTX execution and increased the quality of TTX.
- The document Master Scenario Event List should not be elaborated too deeply, since during the TTX, the participants should jointly develop and build individual parts of the scenario. However, the general idea of the scenario needs to be clear and led by the narrator of the TTX.
- This type of the TTX demand use of laptops, which need to be assured by the organiser or participants. Testing of new tools can only be satisfactorily carried out during hands-on training of all participants.
- It was recognized that it would be necessary to involve media representatives in the implementation of the exercise.
- The survey and the hot-wash, which were executed after the TTX were a great example on how to receive valuable information from participants about the TTX.

The conclusion is that in all countries in the Sava basin there is a lack of staff exercises (TTX), not only for responses to river disasters (floods, pollution) but for any disaster. As part of WACOM, a staff exercise was conducted at the basic levels of difficulty, and the essential conclusion is that every country must necessarily build up what was started with WACOM to higher levels of staff exercises (TTX). This requires extensive preparation, but the effects of staff exercises can literally save lives in the event of disasters.