Interreg
Danube Transnational Programme
SIMONA

SMALL-GROUP INTERACTIVE TRAINING AND WORKSHOP EVENTS

AT THE PREMISES OF PP INSTITUTIONS (ONSITE OR ONLINE)

OUTPUT T6.2

Programme co-funded by the European Union funds (ERDF, IPA, ENI)

Project title

Sediment-quality Information, Monitoring and Assessment System to support transnational cooperation for joint Danube Basin water management

Acronym

SIMONA

Project duration

1st June 2018 to 30th November 2021, 42 months

Date of preparation

30/11/2021

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SLOVENIA: Kristina Koret (GEOZS), Teja Čeru (GEOZS), Meta Dobnikar (GEOZS)

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Project co-funded by the European Union (ERDF, IPA and ENI)

Contents

1. INTRODUCTION

Two value-added activities were included in the **WP8 "Sediment quality evaluation method upgrade and capacity building for uptake"** of the SIMONA project in the 6 months of the project extension (June, 2021 to November, 2021). The main objective of WP8 was the upgradeof the SIMONA sediment quality assessment (evaluation), with the completion of the ongoing pilot testing, for delivering a ready-to-deploy evidence-based site-specific assessment (evaluation) Manual (Activity 1). However, the efficient uptake of the new added-value Assessment Manual was fostered by making advantage of existing SIMONA knowledge transfer experience and training events (Activity 2). These trainings were intended for all water management practitioners (authorities), stakeholders and national laboratories to raise awareness of the need for harmonization of procedures as well as of the importance of the project's outputs, upgrades and to facilitate their understanding of the proposed methodologies.

The Activity 2 "Capacity building: presentation, dissemination and integration of the SIMONA project results and upgrades within already existing events and small-group interactive training events in the PP countries" aimed to**:**

- Upgrade the Output 7.4 Training materials package (WP7 Training) by adding presentations and training materials to the 3 training events. This is immediately linked to the ongoing Activity 7.4 Development of training material package for long-term transnationally harmonized HSs' monitoring.

- Important capacity building upgrade through 2 days small-group interactive training and workshop events at the premises of PP institutions of the participating Danube Countries for the demonstration of sampling techniques from the SIMONA harmonized sampling protocol, as well as presentation of the laboratory protocol and results from the sampling campaigns, and the results of the implementation of the evaluation protocol.

Due to the ongoing COVID pandemic, this activity of the SIMONA project provided a real opportunity of reaching the national authorities and stakeholders, and also educational and research teams that are working on sediment and water pollution of Danube River Basin. The meetings were organized close to monitoring stations of the PPs and so the presentations of the SIMONA protocols, the conclusions made from the sampling and analytical results in the three Test Areas (TA) (WP3) were combined with discussions and sharing of positive practices and, most important, with on-site training.

The SIMONA PPs were able to organize four small group workshops with training that are summarized in the output and the Annexes.

The continuous COVID pandemic resulted in postponing of some WP7 and WP5 activities that were planned in the SIMONA AF for the 5th and 6nd periods. The regular Second and Third WP7 joint training events were shifted to the 7th period, too. To avoid overlapping and overloading with trainings, in the WP8-activity 2 we organized four small-group workshops with training that are summarized in the output and the Annexes.

2. First small-group interactive training and workshop event in Silistra, Bulgaria

The First small-group interactive training and workshop event was held in Silistra, Bulgaria, on 29.-30.06.2021. It started on 29.06. at the Drustar Hotel with traing at the old port monitoring station and demonstration of the passive sampling site at the Drustar Hotel pontoon, and continued with a half day program at the lake and reserve Srebarna (closely connected with the Danube River. The minutes of the event including the program and summary of all presentations and the list of participants are attached (Annex 1). The meeting was held in the end of June during a clear pandemic low and was able to reach all target groups (Fig. 2.1.).

INVITATION

to

Experts from the Water Management Directorate at MOEW
Experts from the Executive Environment Agency
Experts from the Basin Directorate Danube Region
Experts-stakeholders from local/regional environmental organizations
Experts and Researchers from Academic Institutions

for attendance at the

SIMONA TEAM - BULGARIAN NATIONAL, REGIONAL AND LOCAL AUTHORITIES - STAKEHOLDERS

WORKSHOP WITH TRAINING

Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols in Test Areas and Baseline Network sites

June 29 -30, 2021
Silistra, Bulgaria

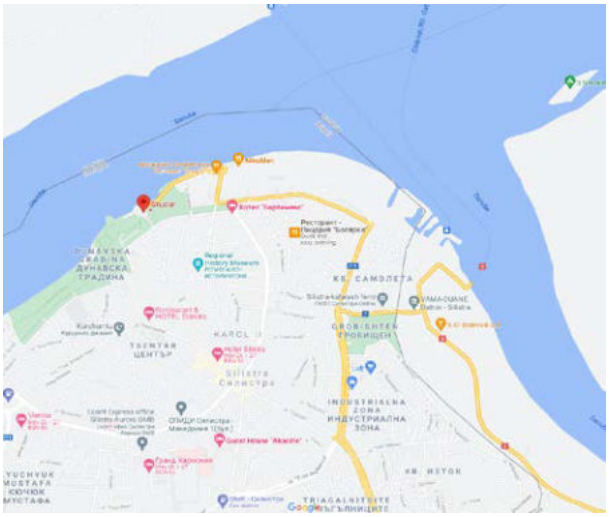

Fig. 2.1. The invitation to the event (all invited institutions took part, shared their expereince and were trained) and the location of Drustar Hotel with the meeting room. The training site at Silistra old port monitoring site was 300 m NE from the hotel.

BG-GI-BAS SIMONA team shared the experience gained from the SDTA sampling and analyses and of the Baseline Network sampling at the two Bulgarian sites. Prof. P. Marjanovic (WP6) presented data from the SDTA and Iron Gate sampling campaigns.

The Bulgarian national experts of the DRBD (Danube River Basin Directorate at MoEW; Ministry of Environment and Water) and ExEA (Executive Environmental Agency, Fig. 2.2) shared their experience in the sampling, analyses of HSs and assessment of trend in the frame of the 2016-2021 management plan.

Researchers from academic institutions (Sofia University, National Institute of Geophysics, Geodesy and Geography – BAS and Geological Institute – BAS) reported results from national and international projects on the Danube River Basin sediment and water quality (Fig. 2.3).

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Z. Kovacs (HU-OVF) and Z. Szakacs (RO-TUCN) shared the main points of the installation of passive samplers with membrane filters at the station in Barcs, Hungary (Drava TA), and Lăpuş River, Romania (Upper Tisa TA).

Fig. 2.2. R. Hristova and Stela Ginin (ExEA) during their presentations.

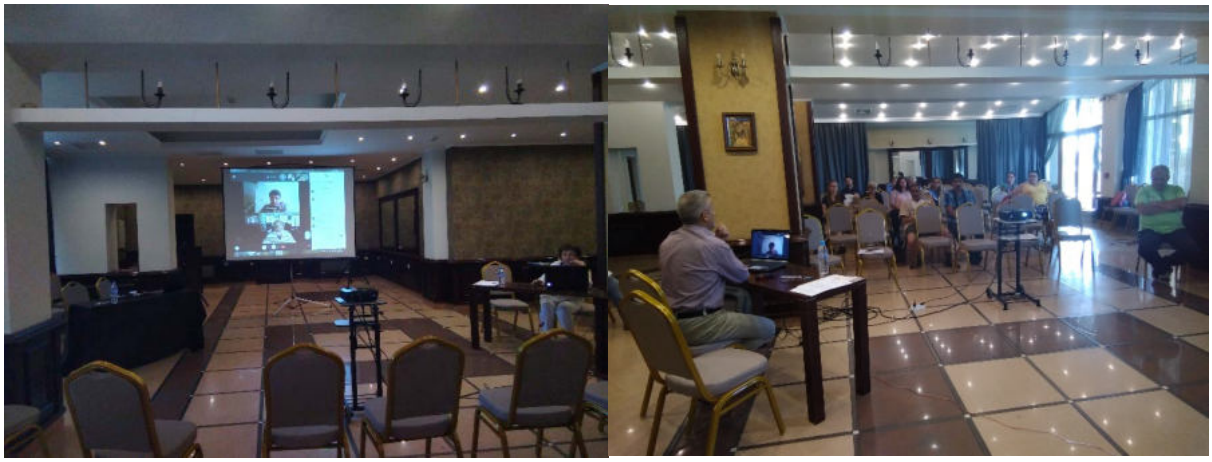

Fig. 2.3. Setting the on-line connection with P. Marjanovic (JC, WP6 leader) and Ts. Kotsev (NIGGG, BAS)

The field training for sampling of bottom, overbank (floodplain) and suspended sediments took place at the TNMN monitoring site of the Silistra Old Port. The training was provided by the International Training Group: Dr. G. Jordan (leader), Dr. Z. Kovacs, Dr. Z. Szakacs, Z. Vilagosi and Dr. G. Iepure, with the active support of GI-BAS experts. Advantages and disadvantages of the aplied sampling equipment were tested and discussed. It was highly appreciated by the national, regional and local authorities and experts that applied personally the sampling techniques recommended by the SIMONA protocol (Fig. 2.4).

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Fig. 2.4. Explaining (G. Jordan, G. Iepure, Z. Vilagosi, International Training Group) and applying (R. Hristova, ExEA; M. Halvani, Silistra environmental class) the sampling equipment: working with the Romanian grabber sampling system and vacuum corer sampler.

On the second day (30.06.0.2021), all participants joined the sampling of water from the Srebarna Lake Reserve demonstrated by Prof. A. Benderev and PhD student A. Toteva (GI-BAS). Afterwards, in front of the Natural Museum Srebarna Reserve the researchers G. Zhelezov and A. Benderev and J. Georgiev of the Regional Administration of Silistra informed about the origin of the lake - karst lake with influence of the Danube River. They also provided detailed information about its history as a reserve and favorite place of plenty of births, most prominently pelicans.

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2. Second small-group interactive training and workshop event in Virovitica, Croatia

The Second small-group interactive training and workshop event was held in Virovitica, Croatia, jointly organized by SI-GEOZS, HR-HGI-CGS and HU-MATE and the International Training Group (Dr. G. Jordan (leader), Dr. Z. Kovacs, Dr. Z. Szakacs, Z. Vilagosi and Dr. G. Iepure). Deatailed information is presented in Annex 2.

On 12.11.2021, the onsite training was held with Croatian, Slovenian and Bosnia-Herzegovina authorities and stakeholders at the Barcs Experimental Staiton (Fig. 3.1). The latter consists of a JDS (Joint Danube Survey) sediment box, passive samplers - membranes designed for the collection of PAHs, pesticides and heavy metals, and an online automatic sensor system.

The participants visited of the Hungarian Water Authority Barcs Station where the water gauging station is in operation; Dr. Jordan outlined the importance and criteria for passive floodplain and bottom sediment pore water sampling under WP8 Activity 1.

Fig. 3.1. Project partners and participants from national authorities and stakeholders at the Hungarian Water Authority Barcs Experimental Station. G. Jordan and representatives of the international training group explain the advantages of the passive samplers and the JDS sediment box.

The presentation section was held on 13.11.2021 (Fig. 3.2).

The project scientific coordinator Dr. Jordan, and Croatian and Slovenian PPs presented the SIMONA protocols, results of its testing in the 3 Test Areas, the SIMONA Field Manual, geomorphological and geological description of the Drava Basin.

Dr Zsolt Szakacs shared the experiences of his sampling team in the Upper Tisza Test Area, including suspended sediment sampling with the JDS sediment trap box and the passive sampling equipment;

Slovenian national authorities presented the monitoring of suspended solids and turbidity in Slovenia in order to share and exchange their knowledge and experience.

Afterwards, a field training was held at the Traning at Virovitica (Drava River Basin) site where the managing national authorities and stakeholders were able to apply the SIMONA sampling techniques and the recommended equipment (Fig. 3.2).

Fig. 3.2. Presentations of project partners and participants and national authorities of Slovenia and Croatia, and field training at Virovitica (Drava River Basin) site by the SIMONA International Training Group.

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4. Third small-group interactive training and workshop event in Debrecen, Hungary

The lecture room component of the Third small-group interactive training and workshop event was held on online on 22.10.2021 organised by the Hungarian Water Authorities (HU-OVF) with the participation of all the Regional Environmental Government Laboratories authority stakeholder who are responsible for the sediment quality monitoring in the country. The Third small-group interactive field training and workshop event was held on 04.11.2021 in Debrecen, Hungary, (organized by HU-OVF) and the International Training Group. It was dedicated to the Hungarian authorities, and other interested parties and stakeholders. The participants of the event represented (1) Regional Water Authorities, (2) Regional National Environmental Laboratory in Miskolc (northern Hungary), and (3) Regional National Environmental Laboratory in Debrecen (eastern Hungary). The minutes are presented in Annex 3.

Fig. 4.1. Field training during the third Activity 2 event at the Berettyó River, village Pocsaj near Debrecen, with the Hungarian authorities, and other interested parties and stakeholders

5. Fourth small-group interactive training and workshop event at Morava River, Czech-Slovak border, Czech Republic

The Fourth small-group interactive training and workshop event was held on24th-25th November 2021 at the Morava River, at the Czech-Slovak border in the Czech Republic (Annex 4). It was dedicated to the Czech and Slovak authorities, and other interested parties and stakeholders. It was jointly organized by Dr. Gyozo Jordan, project scientific coordinator (HU-MATE), Kristina Koret, LP communication manager (GEO-ZS), the Czech and Slovak PPs and the SIMONA International Training Group.

Due to the complicated pandemic situation, during the first day the presentations were given in the virtual conference room (Fig. 5.1). Dr Meta Dobnikar, the SIMONA project manager (GEO-ZS) provided general information about the main project achievements and the impact of Corona-virus on project activities. Dr Gyozo Jordan, the project`s scientific coordinator presented the SIMONA sampling and laboratory protocols and the sampling design presented in the Field Manual. Based on the mentioned protocols, and more importantly, based on the testing of the protocol in the three Test Areas, and the DRB Baseline National Sites sampling action, the Field Manual was developed. The form of the Manual is a step-by-step practical guidance document which has a purpose to be proposed for a long-term, regular, surveillance monitoring, not addressing the local but the overall contamination in the monitored water body.

Dr Zsofia Kovacs (ASP, HU-OVF) presented the WP8 Sediment Quality Upgrade and Capacity Building. Dr Zsolt Szakacs (PP RO-TUCN) had a presentation on the experiences from Upper Tisa Test Area sampling and additional value-added activities in SIMONA.

Afterwards, Dr Igor Striček (SK-SGIDS PP) held a presentation on the general status of sediment monitoring in Slovakia and the scope of the SIMONA project (national sites sampling experience). The monitoring of stream sediments carried out by SK-SGIDS was presented and the experience gained was shared. Dr Pavel Hucko presented the sediment sampling from water reservoirs in Slovakia through videos: the type and operation of sediment sampling equipment for bottom sediments from reservoirs.

Dr Libor Mikl (ASP) gave a presentation on sediment sampling and monitoring in the Czech Republic. He also compared the similarities and differences of routine sediment sampling methods in the Czech Republic with the ones proposed in the SIMONA project. Almost the entire sampling process was aligned with the SIMONA sampling protocol and field manual documents. The main differences are in the suspended sediment sampling. The sampling equipment used was also described.

On 25th November, 2021, the onsite field training took place on the Gauging Station of the Morava River near the Czech-Slovakia Border (Lanžhot/Brodské) in the Czech Republic (Fig. 5.2). Images and videos of the training are available on the SIMONA Google Drive)

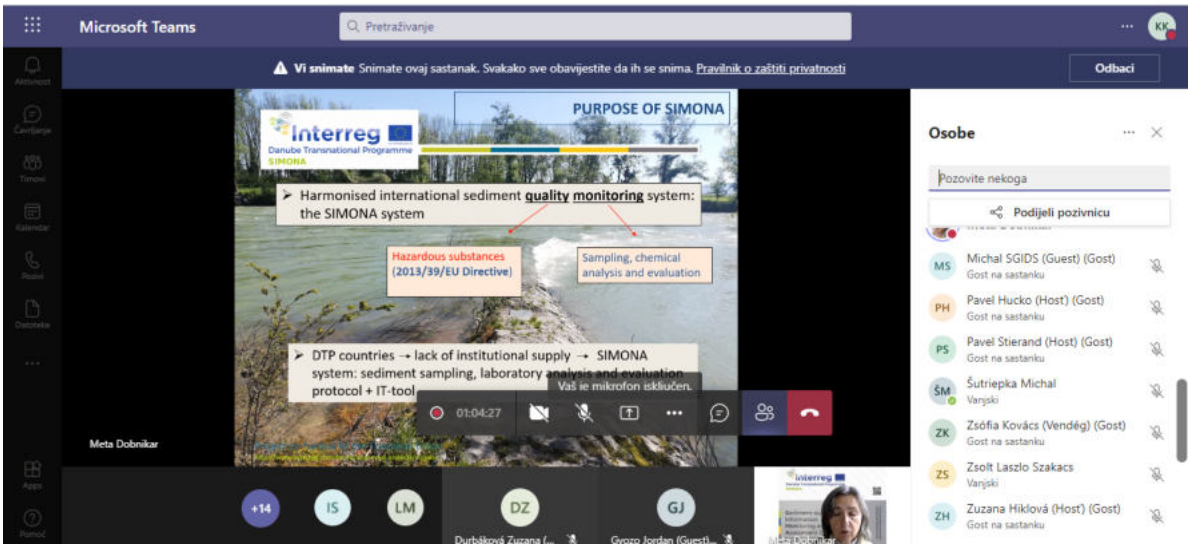

Fig. 5.1. Meta Dobnikar during her presentation given in the virtual conference room of the Fourth small-group interactive training and workshop

Fig. 5.2. Field training at the Gauging Station of the Morava River near the Czech-Slovakia Border (Lanžhot/Brodské) in the Czech Republic

6. CONCLUSIONS

The value-added activities of WP8 "Sediment quality evaluation method upgrade and capacity building for uptake" and particularly Activity 2 "Capacity building: presentation, dissemination and integration of the SIMONA project results and upgrades within already existing events and small-group interactive training events in the PP countries" were highly effective in the COVID pandemic situation. Presentations and training materials were added to the training package. An International SIMONA Training Team lead by the scientific coordinator Dr. Gyozo Jordan was built and helped by the involved PPs. Altogether, 4 event were organized in 4 four countries (Bulgaria, Hungary, Croatia, Czech Republic) reaching stakeholders from 8 countries (Croatia, Czech Republic, Bosnia-Herzegovina, Bulgaria, Hungary, Slovakia, Slovenia), out of the 13 DTP Countries, including more than 80 participants from national, regional and local managing institutions (national authorities and stakeholders), academic institutions (universities, research institutes). With due respect to the prevailing pandemic restrictions, the WP8 Activity 2 contributed substantially to the capacity building upgrade in the DTP Countries and it has become on of the main successes of the SIMONA project.

Project co-funded by the European Union (ERDF, IPA and ENI)

ANNEXES

Project co-funded by the European Union (ERDF, IPA and ENI)

Danube Transnational Programme
Sediment-quality Information, Monitoring and Assessment System to support transnational cooperation for joint Danube Basin water management

SIMONA TEAM - BULGARIAN NATIONAL, REGIONAL AND LOCAL AUTHORITIES - STAKEHOLDERS

WORKSHOP WITH TRAINING

Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols in Test Areas and Baseline Network sites

MINUTES

A stream of cooperation
Project co-funded by the European Union (ERDF, IPA and ENI)

1. Invitation and Agenda

Event: SIMONA TEAM – Bulgarian authorities and experts small-group workshop with training

Date: 29th-30th June 2021

Topic: Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols - training

Type: On-site in Silistra – hotel Drustar and Old port TNMN site; with online contributions

Organizer: BG-GI-BAS

Contact info:
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Description:

Due to the still ongoing COVID-situation all over the world and the resulting travel restrictions, the SIMONA training events are held mainly on-line. Since the physical meetings with live-demonstration of sampling equipment and the implementation of the SIMONA harmonized protocols are of great importance for the efficient uptake of the project results by water management practitioners (authorities), small-group workshops were planned in the WP8, activity 2. : Capacity building: presentation, dissemination and integration of the SIMONA project results and upgrades within already existing events and small-group interactive training events in the PP. The workshop with training addresses all SIMONA national target groups that are active or interested in harmonized sampling, laboratory analyses and evaluation methods and are involved in the Danube river basin monitoring and management.

The workshop is held on the **Day of the Danube** – the 29.06. and continues with a half day program at the lake and reserve Srebarna, which is closely connected with the Danube River.

INVITATION

to

Experts from the Water Management Directorate at MOEW

Experts from the Executive Environment Agency Experts

from the Basin Directorate Danube Region

Experts-stakeholders from local/regional environmental organizations

Experts and Researchers from Academic Institutions

for attendance at the

SIMONA TEAM - BULGARIAN NATIONAL, REGIONAL AND LOCAL AUTHORITIES - STAKEHOLDERS

WORKSHOP WITH TRAINING

Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols in Test Areas and Baseline Network sites

June 29 -30, 2021
Silistra, Bulgaria

DTP2-093-2.1 SIMONA - "**S**ediment quality **I**nformation, **Mon**itoring and **A**ssessment System to support transnational cooperation for joint Danube Basin water management"

Project co-funded by the European Union (ERDF, IPA and ENI Contribution)

INVITATION LETTER

Dear Madam or Sir,

The GI-BAS team of SIMONA project in cooperation with project partners has the pleasure to invite you to the **GI-BAS SIMONA Team – National, Regional and Local Authorities - Stakeholders WORKSHOP WITH TRAINING**. The Workshop will take place at the Drustar Hotel in Silistra on June 29-30, 2021.

Main subjects of the **Workshop** will be the presentation of SIMONA Transnationally harmonized sediment sampling, laboratory and evaluation protocols for Hazardous Substances in Danube River Basin, the results of the Case Studies in South Danube Test Area and the two Bulgarian Baseline network sites, Additional value-added activities. The Workshop will be compiled with a **Field Training** and demonstration of sampling techniques for river bottom, floodplain and suspended sediments, including passive sampler implementation.

As the subjects of the meeting regards issues in the competence and interest of the Bulgarian Ministry of the Environment and Water (Water Management Directorate), Executive Environment Agency, Basin Directorate Danube Region, regional and local environmental authorities, as well as of stakeholders and researchers from Academic and Industrial Institutions, *the GI-BAS team of SIMONA project would like to invite experts from these Institutions to the workshop with training. You are also kindly invited to share your expertise, results and achievements on the subject of the workshop*.

The Agenda for the Workshop is enclosed within this Invitation.

For further details, please contact the organizers at gibassimona@gmail.com and impeytcheva@gmail.com.

We are looking forward to meeting you in Silistra!

GI-BAS SIMONA Team

Sofia, June 2021

AGENDA

for

SIMONA TEAM - BULGARIAN NATIONAL, REGIONAL AND LOCAL AUTHORITIES - STAKEHOLDERS

WORKSHOP WITH TRAINING

Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols in Test Areas and Baseline Network sites

June 29 -30, 2021
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DTP2-093-2.1 SIMONA - "**S**ediment quality **I**nformation, **Mon**itoring and **A**ssessment System to support transnational cooperation for joint Danube Basin water management"

Project co-funded by the European Union (ERDF, IPA and ENI Contribution)

VENUE

Drustar Hotel
10, ul. "Kapitan Mamarchev" str
7500 Silistra, BULGARIA
https://www.hoteldrustar.com/bg

Хотел „Дръстър“
ул. „Капитан Мамарчев“ № 10
7500 Силистра
https://www.hoteldrustar.com/

PROGRAM

(last modified on-site due to the hot weather and need to make the field training in the early morning)

June 29th, 2021

Greetings to the Day of Danube!

Conference Hall, Drustar Hotel

8:30 – 8:40 SIMONA Case Studies from Test Areas: South Danube Test Area *(Dr. I.Peytcheva & Dr. A.Hikov)*

8:40 – 8:50 Baseline network sampling at the two Bulgarian sites *(Dr. P.Filipov & Dr. Z.Milakovska)*

8:50 – 9.00 Heavy metal studies in sediments of Iskar River Basins *(on-line)* *(Dr. Z. Cholakova, Sofia University)*

SDTA sampling site at Silistra Old port

9:00 – 11:00 Field training: sampling of bottom, floodplain and suspended sediments.
International Training Group: G. Jordan (leader), Dr. Z. Kovacs, Dr. Z. Szakacs, Z. Vilagosi and Dr. G. Iepure.
Local Trainers: A. Hikov, P. Filipov and I. Peytcheva (GI-BAS)

Conference Hall, Drustar Hotel

11:00 – 11:15 **Coffee break**

11:15 – 11:30 *Presentations by the invited **national authorities** (Sample Design; Currently Used Sampling and Laboratory Methods and Standards)*
Planning a sediment monitoring network
(S. Neykova and co-authors, Danube River Basin Directorate, Ministry of Environment and Water - DRBD MoEW)
Sediment monitoring through the practice of the ExEA
(St. Gynin, R. Histova, Executive Environmental Agency –ExEA, MoEW)

11:30 – 12:30 *Presentations by the invited **academic experts** (Sample Design; Sampling Methods and Standards, etc.)*
Natural and technological risk assessment in the Bulgarian-Romanian cross-border region
(Dr. *G. Zhelezov, NIGGG, BAS)*
Accumulation of heavy metals in the lowlands of the Lower Danube during floods *(on-line)*
(Dr. *T. Kotsev, Dr. V. Stoyanova, Dr. G. Zhelezov, NIGGG, BAS)*
Organization, conducting and interpretation of field hydrochemical studies of surface and groundwater - the experience of the department "Hydrogeology" at

the Geological Institute, BAS
(Dr. Benderev, B. Mihaylova, Geological Institute, BAS)

Application of GIS in the processing of hydrochemical data on the example of the Upper Pontic aquifer in the Lom Depression
(A. Toteva, Geological Institute, BAS)

12:30 – 14:30 Lunch break

Conference Hall, Drustar Hotel

14:30 – 14:45 Reservoir sediment sampling (*on-line; Prof. P. Marjanovic*)

14:45 – 15:00 Additional value added activities of SIMONA: Sediment quality evaluation method upgrade and capacity building for uptake (*SIMONA Project Scientific Coordinator Dr. G. Jordan, Dr. Z. Kovacs*)

15:00 – 15:10 Discussion on bottom sediment sampling
15:10 – 15:20 Discussion on floodplain sediment sampling
15:20 – 15:30 Discussion on suspended sediment sampling

15:30 – 15:45 Application of passive samplers sampling techniques (*Dr. Z. Kovacs, Dr. M. Mortl, Dr. Z. Szakacs, G. Iepure*)
15:45 - 16:00 Upper Tisza Test Area and the passive sampler installation – (*Dr. Z. Szakacs, G. Iepure)*

16:00 – 16:15 Coffee break

16:15 – 16:30 Demonstration of the passive sampler positioned at Drustar Hotel pontoon, Danube River by the GI-BAS team (South Danube Test Area - Silistra Experimental site)

16:30 – 16:45 Discussion on laboratory analyses (Z. Vilagosi)

16:45 – 17:00 Discussion on SIMONA Evaluation methods and practices (K. Dudas, G. Jordan)

17:00 – 18:00 Summary and Concluding remarks

20:00 – 22:00 Dinner

June 30th, 2021

9:30 Departure from Drustar Hotel to Lake Srebarna

10:00 – 11:45 Visit of the Srebarna Lake Reserve

12:00 – 13:00 Discussion on the monitoring of reservoirs and lake reserves with Lunch at the Vetren fishing village at the Danube River side

Note: Working languages of the meeting will be Bulgarian and English

2. Minutes

Event: SIMONA TEAM – Bulgarian authorities and experts - small-group workshop with training

Date: 29th-30th June 2021

Topic: Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols - training

Type: On-site in Silistra – hotel Drustar and Old port TNMN site with online contributions; and at Srebarna Lake and natural reserve

Organizer: Geological Institute, Bulgarian Academy of Sciences (BG-GI-BAS)

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MINUTES

29th June

I. Peytcheva opened the session with **Greetings to the Day of Danube!** Special greeting address arrived from the **Silistra governor** Mrs. Eli Todorova with wishes for successful workshop as the results of the SIMONA project are important for the regional environmental management and development.

(8:30 – 8:50)

In the first two presentations of the GI-BAS SIMONA team *I. Peytcheva & A. Hikov* and *P. Filipov & Z.Milakovska* presented the methods of sampling and some preliminary results from the South Danube Test Area (SDTA) – Silistra Experimental Site and the two Bulgarian baseline network (BN) sites pointing out the main conclusions and experience gained. The sampling in the SDTA has confirmed the ISO recommendation, which is also reiterated by the WFD Guidance Documents, that prior to any sediment monitoring a detailed preliminary monitoring site investigation is required. For the bottom sediment sampling it was possible to use different sampling methods and equipment to achieve similar results as prescribed by the SIMONA protocol

(scoop for small rivers; corer sampler for large rivers). It has been demonstrated that it is possible to collect floodplain sediment samples using different kind of equipment: i. Manual soil corers of different types, or ii. Scoop and shovel/spade. However, for the SIMONA BN sampling it was decided (and included in the guidance documents) to use spade and to sample top and bottom soil. For the suspended sediment sampling the gained problems and questions were summarized, e.g. dependence on the weather conditions, need of specialized equipment, etc. They were included in the activity 1 of WP 8, whereas a passive sampler is installed in three testing stations in Hungary (Drava test area), Romania (Upper Tisza) and Bulgaria (South Danube at Silistra).

(8:30 – 8:50)

In an online presentation *Zornitsa Cholakova* (Assoc. Prof. at the Faculty of Geology and Geography, Sofia University) made an introduction to the main terms used during complex heavy metal studies of the sediments of Iskar River basins as part of the Danube River basin. She presented an assessment of the geochemical migration and differentiation of 8 - heavy metals (Cu, Zn, Pb, Cd, Mn, Ni, Co, Cr) in the bottom and floodplain sediments and suggested main geochemical associations of the leading elements in the contaminated and relatively less technogenic areas of the basin. Some methodological aspects were discussed, concerning the sampling procedure, sediment pH, grain size fractions, EQS values. Z. Cholakova concluded that floodplains preserve the impact's imprint and the result of metal cumulative effect, whereas lithochemical anomalies are also spread in the bottom sediments of the rivers in the studied basin.

G.Jordan asked if the TOC was measured in the samples.

9:00 – 12:00

The field training for sampling of bottom, floodplain and suspended sediments took place at the TNMN monitoring site of Silistra Old port. The training was provided by the International Training Group: G. Jordan (leader), Dr. Z. Kovacs, Dr. Z. Szakacs, Z. Vilagosi and Dr. G. Iepure. with the active support of local experts: P. Filipov and A. Hikov (GI-BAS) for the demonstration of the Auger sampler, and I. Peytcheva demonstrating the passive membrane sampler. All participants took part in the training. Local experts Rumyana Hristova of the Executive Environmental Agency and Murad Halvani of (environmental class, Silistra), who applied all techniques and equipment (see the images below). All questions raised were immediately answered by the trainers. The two hours field training was highly appreciated by the national, regional and local authorities and experts.

12:00 – 12:45

Coffee break

12:45 – 12:55

The program continued as planned with presentations of the invited national/regional authorities and academic experts on sampling design, currently used sampling and laboratory methods and standards. First, Rumyana Hristova (Executive Environmental Agency, Ministry of Environment and Water – ExEA-MoEW) shared the experience of ExEA on sediment sampling in rivers and lakes during current monitoring activities in Bulgaria. The ExEA experts follow the BDS ISO 5667-12 standard considering the local infrastructure, accessibility, weather conditions and sedimentation at the different parts of the monitored rivers. The applied equipment depends on prevailing size fraction, e.g. for gravel the grab system, for sand the scoop or shovel system, and for clay and mud the corer or grab system are used. Sampling depth is 0 – 10/15 cm. Sieving and homogenization is

performed in the laboratory, no field sample processing such as sieving is used. The samples are stored in glass containers (for organic substances) and plastic containers (for metals), labeled and sealed on site, then transported in cool boxes and preserved in refrigerator at 4°C until the analyses. Sampling device the Van Veen type grabber is used in the lakes, whereas the sampling is implemented from water tower or from boat.

12:55 – 13:05

Silvia Nejkova, Maraina Kancheva and Milena Geshkova of the Danube River Basin Directorate (DRBD, MOEW) presented the way of the planning of the sediment monitoring network for the currently running management plan. They first introduce the DRBD, which is the largest RBD in Bulgaria being in charge for the development of River Basin Management Plan (RBMP) and Flood Risk Management Plan (FRMP) in the Bulgarian Danube River Basin District. The surface water monitoring program includes Quantitative monitoring program, Quality monitoring program and Danube Transnational Monitoring Program. The network for surface water monitoring is published in Section 4 of the RBMP 2016-2021. In the water matrix the network covers 243 points, for monitoring the biota matrix there are 50 points, and for the sediment matrix there are 35 monitoring points. The results of the monitoring in the water and biota matrix are used in the assessment of the ecological and chemical status of surface water bodies, and the results of the monitoring in the sediment matrix are used to assess the trends in pollutant concentrations. Sediment analysis cannot be used to assess chemical status as there is no national EQS for sediments.

For the selection of monitoring points for analysis of pollutants in sediment the recommendations of the General Strategy for the Implementation of the Water Framework Directive (2000/60 / EC) were taken into account. Based on the results of a completed project in 2015, an "Approach for assessing trends in changes in the concentrations of pollutants in sediment and biota" was developed. For the period 2017-2021 a total of 39 monitoring points were sampled and analyzed with a frequency of sampling once a year to once per 3 years. Due to the lack of sufficient number of data, it was not possible to apply the prepared trend assessment approach so far. With additional data and in the new five-year management plan the trend can be assessed.

13:05 – 13:25

Stela Ginin (ExEA, MOEW), active member of the SIMONA Laboratory WG and co-author of the Laboratory Protocol shared the experience of ExEA on the laboratory analyses of river basin sediments in Bulgaria. She suggested, and the participants agreed, to discuss the laboratory analysis issues immediately.

Stela Ginin gave an overview of the performance of analyses at ExEA. The sediment sample stations for BG are ~100, 39 of them are from Danube region. In Danube region there are 6 labs but all 14 labs of ExEA are involved in sediment monitoring, whereas the organics are distributed in 7 of them. Following the new list of priority HSs, “new” organic PS are involved in 3 labs.

As already shared with the SIMONA partners and included in the attachments to the outputs and deliverables, almost all recommended elements and substances for sediments listed in the Directive 2013/39/EU are already analyzed and certified in BG and ExEA. Additionally, the following components are measured: TOC; quantity of the size fraction < 0.63 µm in the sediment sample (g 0.63 µm/g sediment). S. Ginin presents the equipment that is used in the labs for wet sieving with field water; TOC determination; digestion by microvawe; analyses by ICP-MS and GC/MS. Since 2019, new methods were involved: for the analyses of phthalates (ISO 13913-extraction/ GC-MS-MS), TBT- EN ISO 23161 (extraction+derivatization/GC-MS-MS), PBDE (EN ISO 22032), C10-13 (ISO 18635), HBrCDD (WLM), PFOS (WLM). For QA/QC internal lab control

(CRMs), PTs participation by Qualco Danube, duplicate samples- duplicate analyses are applied. Some samples are archived.

Questions and Comments:
S. Ginin reminded about asking help with the analyses of QUINOXYFEN.
G. Jordan and Z. Vilagosi: The message was sent to the analytical department of Balint Analytika Labs; they will control the situation, once they are back in Hungary.
G. Jordan: We should set a question to the PPs and especially the LP that some samples from the TA and BN should be archived. Dr. Jordan will revive the WGs and the Laboratory WG especially that should provide an efficient expert platform to discuss the issues raised by S. Ginin.

13:25 – 13:45
G. Zhelezov (National Institute of Geophysics, Geodesy and Geography, Bulgarian Academy of Sciences – NIGGG-BAS) reported about the results of a RoBuHaz-Dun project in 2016 about the "Natural and technological risk assessment in the Bulgarian-Romanian cross-border region", including the sediment studies from the Danube River Basin. The main focus of the project was directed to the natural and technological hazards, including landslides and floods, as well as the assessment of soil and aquifer vulnerability to pollution with nutrients, pesticides and metals. Integrated GIS data base was elaborated. The outcomes of the project had been published and made available to local authorities, emergency inspectorates and citizens.

13:45 – 14:45 Lunch break

14:55 – 15:15
P. Marjanovic (WP6 leader) and D. Vucic joined the workshop on-line during the afternoon session. P. Marjanovic made a presentation with focus on reservoir sediment sampling. He discussed the sampling methodology, sampling design, equipment, storage and transport. Afterword, he also shared the experience of his team from the SDTA sampling in Serbia organized jointly with A. Hikov and Z. Milakovska of BG-GI-BAS and colleagues of the Belgrade University. During this campaign the Serbian Jaroslav Cerny Institute team trained the Bulgarian sampling team for sampling from boat at Iron Gate Dam. The implementation of the protocols during the NB sampling in the two Serbian sites were shown, too.

15:25 – 15:40
A. Benderev (GI-BAS; B. Mihaylova as co-author) shared the experience of the department "Hydrogeology" at the Geological Institute in a presentation titled "Organization, conducting and interpretation of field hydrochemical studies of surface and groundwater - the experience of the section Hydrogeology at the Geological Institute, BAS".
He first provided information about the department that is a main center for hydrogeological research in Bulgaria. The department is not directly involved in the surveillance monitoring of the Danube River Basin but serves as external expert institution, especially in natural emergency situations. Depending on the tasks and projects and on the purpose of sampling, the approach includes facilities and team competence, operational issues with timing and activities planning, assessment of the analytical results using GIS data and computer modelling. The team is well equipped for sampling and in-situ measurements of water physical parameters, a few persons are accredited for sampling and data evaluation.
A. Benderev presented some case studies such as the „Chemical status assessment methodology

reflecting the impacts of the climate changes on the status of surface water including analysis of chemical pressure, impacts, risks and status". The biggest challenge was the huge number of groundwater sampling points (130), with sampling frequency once per month but an operational solution was found. The second case study was from a mining area in Bulgaria. The project was called "Complex water studies in the area of the Ellatsite open-pit mine, including environmental impact studies" and it was conducted in the period 2006-2020. Hydrochemical maps were provided with assessment of the various factors and processes on the degree of water pollution, including natural self-purification, as well as impact of construction of a mine water treatment plant on the waters of the Malak Iskar River. The third and fourth case stidues were about groundwater monitoring in the region of AURUBIS BULGARIA AD and in the open pit mine

"Medet". The fifth case study included the impact assessment of highly mineralized water from artesian drilling. The biggest challenge for the team was shown in the sixth case study on "Determining the source of drinking water pollution with Mn in the village of Brestovitsa" (2020-2021). It was shown that Mn did not have underground origin (as in other cases with water intake facilities in river terraces) but it was due to the connection of groundwater with surface water from an artificial lake that flooded large areas with vegetation (detected Mn-bacteria).

15:40 – 16:00

T. Kotsev (NIGGG, BAS) in co-authorship with V. Stoyanova presented on-line the data about the accumulation of heavy metals in the lowlands of the Lower Danube during floods. The data revealed a link between the occurrence of floods and the presence of contaminant metals in the river sediments. Furthermore, there is a lack of information on heavy metals in overbank sediment from individual flood events. The sampling of channel and overbank occurred in the autumn of 2013, after the big Danube flood in the spring. The data for the metal concentrations in the finest <0.063mm fraction from rivers with past and present mining activity in the Lower Danube (South Danube) showed enrichment in Co, Cu, As, Ni, Cr, Zn, Hf, Pb, Sb, V, Sn, Mn, Cr, Ni and Cu. The concentration of contaminant metals in river sediment tend to increase during high flow events.

Questions and Comments:

G. Jordan: As a comment, the presented results provide clear evidence on the importance of the floodplain sediment monitoring (contrary to the primary doubts on the need of such monitoring among some PPs in the SIMONA project).

16:00 – 16:15

A. Toteva, PhD student at the Geological Institute (BAS) reported about the application of GIS in the processing of hydrochemical data on the example of the Upper Pontic Aquifer in the Lom Depression. She showed that GIS application in the processing of hydrochemical parameters in the study area allowing for updating and specifying hydrochemical patterns and their relationship with other factors. The aim of the research was to determine the regularities in groundwater chemistry and the areal and depth variation in composition. The software used in this research are ArcMap 10.2.1 and Surfer 11.0. The kriging method was used for interpolation that was primary developed for purposes of the gold mining industry. The results include hydrochemical characteristic with certain maximum, minimum and average values of the water quality indicators for the respective number of samples; maps for spatial distribution of chemical indicators, visualizing a regional view of the chemical composition and giving prognostic and expected results for future testing.

Questions and Comments:
G.Jordan: Did you make comparison of the chemical composition of the ground- and surface water?
A. Toteva: No, not at this point.

17:00 – 17:10

Z. Kovacs, in co-authorship with G. Jordan and M. Mortl, made the transition to the theme of passive suspended sediment sampling with the JDS4 standard sediment box and with the application of passive membrane sampling techniques for dissolved HS sampling. She gave details about the PILOT MONITORING SYSTEM - BARCS (DRAVA Test Area), the first pilot station for suspended sediment monitoring included in additional project upgrade value-added activities of SIMONA (WP 8): Sediment quality evaluation method upgrade and capacity building for uptake. The main goal for the passive membrane sampling is to apply an easy-to-use, fast and efficient tool in terms of operation, and from a scientific point of view, the process should be representative and reproducible. New specific membrane holders for the new powder-free membranes were obtained, with specific membranes for Metals, PAHs, and Pesticides. Z. Kovacs pointed out that the latter efficiently supports the surveillance monitoring. She also provided information on the installation and operation of an improved sediment box improved by the additional application of quantitative turbidity and velocity measurements, in addition to measurements of pH, DO and conductivity at the Drava Test Area Barcs Experimental Site. A standard sediment box for floodplain sediments had been also installed at the river bank.

17:10 – 17:30

Z. Szakacs, in co-authorship with Z. Kovacs, M. Mortl and G. Iepure, presented the actions in the Upper Tisza TA during the passive sampler installation at LĂPUȘ River, Upper Tisa Test Area Experimental Site. This is the other TA of the SIMONA Additional value-added activity (WP 8): Sediment quality evaluation method upgrade and capacity building for uptake. He first provided data about the sampling in the 10 Upper Tisa Test Area sites. The Lăpuș River sampling point was one of the sampling points and was chosen also for the installation of the passive sampler. The advantages of the site included the following: Romanian Water Authority sampling point; equipment security, overview and flood early warning managed by the Water Authority monitoring twice a day; relatively large depth required for the passive sampler deployment (0.5 m). There were also some disadvantages of the site, such as fluctuation of water depth (water level below 0.5m to above 3m); lack of floating pontoon; equipment security can be compromised by tourists or fishermen; river bank and floodplain in private property; nearby confluences and express road bridge solved by relocating the point upstream. Finally, the passive sampler was linked to a visibly marked floatation self-created device and fixed with a three-point anchor using silicone coated steel wire. The visibility of the system was increased with the SIMONA Project logo. However, it requires periodic check for system integrity, cleaning of debris, vegetation and branches and checking for sufficient water depth.

Questions and Comments:
I. Peytcheva remarked the creativity of the team during the installation, it was a real challenge.

17:20 – 17:30

In the general discussion, SIMONA Scientific Coordinator G. Jordan, and I. Peytcheva representing the organizer BG-GI-BAS team, thank all participants for their active contribution to the workshop

and the training. The participants were very satisfied and thanked the SIMONA organizers and international trainers for the useful discussions and trainings.

17:30 – 18:00

The working program of the day ended with a demonstration of suspended sediment sampling with the passive sampler positioned at Drustar Hotel pontoon, Danube River (South Danube Test Area Experimental Site) by the GI-BAS team. This is the third test station included in the SIMONA Additional value-added activities (WP 8): Sediment quality evaluation method upgrade and capacity building for uptake. A. Hikov and P. Filipov with the local helper Z. Georgiev took the sampler out of the water and showed the position of the three filters, then placed it back to the 0.5 m depth below water level. Additional information was given by the SIMONA international trainers.

Discussions continue during the joint dinner.

30th June

9:30

The group departed from the hotel Drustar.

10:00 – 12:00

First, all participants reached the Srebarna Lake Reserve. A. Benderev and A. Toteva demonstrated the sampling of water from the lake side.

Afterwards the group visited the Natural Museum Srebarna Reserve. In front of the museum and with a view towards the lake, G. Zhelezov informed about the origin of the lake: karst lake with influence of the Danube River. He provided detailed information about its history as a reserve and favorite place of plenty of births, most prominently for pelicans. A. Benderev and J. Georgiev of the Regional Administration of Silistra supported him with additional information about the current status of the lake and the reserve.

The group visited the Museum guided by its director.

12:00 – 13:00

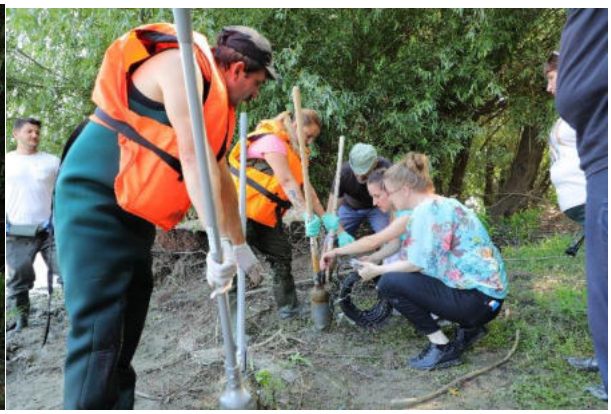
The discussion on the monitoring of reservoirs and lake reserves continued during the lunch at the Vetren fishing village at the Danube River side.

1. PICTURES:


The morning session: On-line presentation of Z. Cholakova (Faculty of Geology and Geography, Sofia University)

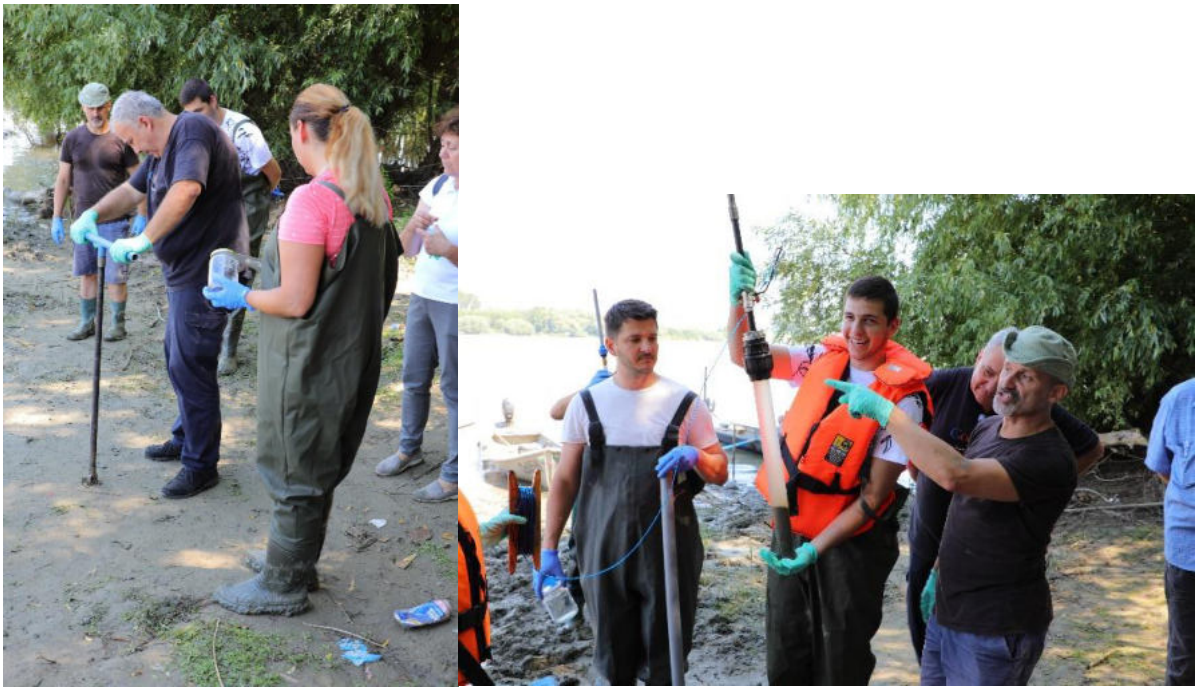
The Field Training: 09:00 – 12:00 h


The international training group prepared for the training, supported by local trainers, and surrounded by Bulgarian experts representing government authorities and the academia: Z. Kovacs is showing the SIMONA field sheets (left). Field training and demonstration (right).

Explaining (G. Jordan, G. Iepure, Z. Vilagosi, International Training Group) and applying (R. Hristova, ExEA) the sampling equipment: working with the Romanian grabber sampling system.

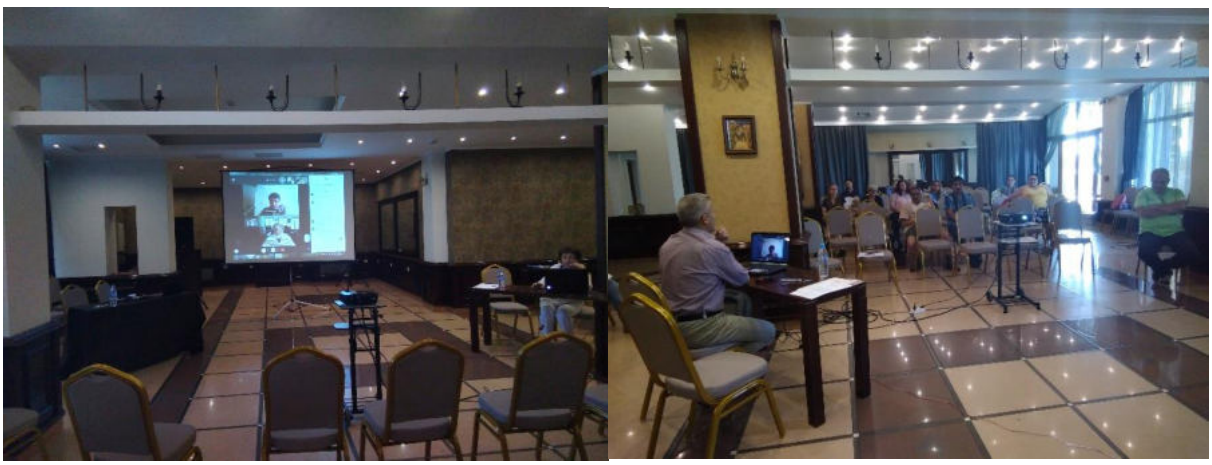
R. Hristova (ExEA-MoEW) and M. Halvani (Environmental class, Silistra) applying the scoop sampling of bottom sediments and learning to take the active 5-10 cm layer from the vacuum corer sampler.



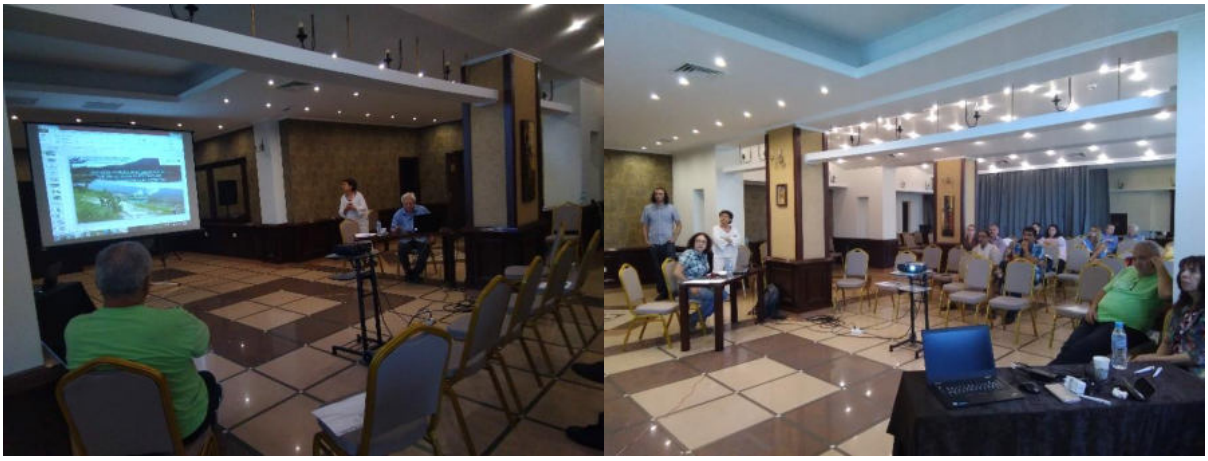
Demonstration of sampling with Auger sampler (A. Hikov, GI-BAS) and sampling with the vacuum corer sampler (M. Halvani, Silistra, assisted by Z. Vilagosi and G. Jordan).

R. Hristova and Stela Ginin (ExEA) during their presentations.

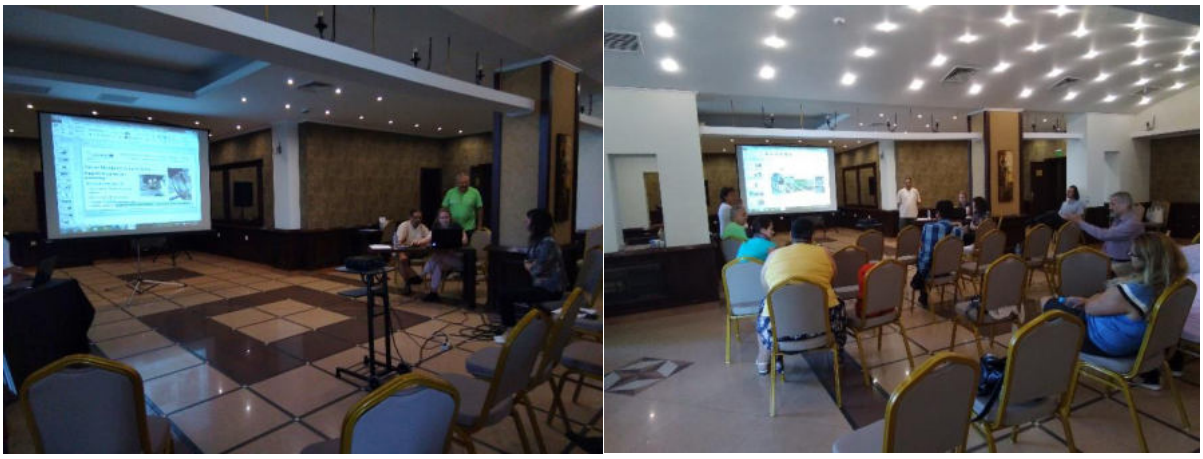
S Neykova (DRBD, MoEW) during her presentation and discussion after the presentation of G. Zhelezov (NIGGG, BAS).



Setting the on-line connection with P. Marjanovic (JC, WP6 leader) and Ts. Kotsev (NIGGG, BAS), and questions and comments to the presentation by G. Jordan.



A. Benderev and A. Toteva (GI-BAS) during their presentations.



Z. Kovacs (HU-OVF) and Z. Szakacs (RO-TUCN) sharing the main points of the installation of passive samplers with membrane filters at the station in Barcs, Hungary (Drava TA), and Lăpuș River, Romania (Upper Tisa TA).

A. Hikov and P. Filipov (BG-GI-BAS) during the demonstration of the passive sampler with membrane filters at the Drustar pontoon station in Silistra, Bulgaria (South Danube TA), and of the corer sampler.

A. Benderev and A. Toteva taking a water sample from the lake Srebarna.

G. Zhelezov and A. Benderev presenting the general information about Lake Srebarna as karst lake influenced by the Danube River and functioning as natural reserve.

Danube Transnational Programme
Sediment-quality Information, Monitoring and Assessment System
to support transnational cooperation for joint Danube Basin water management

INVITATION

TO

SIMONA TEAM – CROATIAN AND SLOVENIAN STAKEHOLDERS

WP8 SMALL-GROUP WORKSHOP WITH TRAINING

12TH-13TH OCTOBER 2021

VIROVITICA, CROATIA

Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols in Test Areas and Baseline Network sites

Project co-funded by the European Union (ERDF, IPA and ENI)

Event: SIMONA WP8 WORKSHOP WITH TRAINING

Date: 12th -13th October 2021

Topic: Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols in Test Areas and Baseline Network sites

Type: On-site Training event; Virovitica, Croatia, Barcs (Hungary)
online (if needed)

Organizer: dr. Gyozo Jordan, project scientific coordinator (HU-MATE),
Kristina Koret, LP communication manager (GEO-ZS)

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Department of Mineral Resources
Tel: +3861/ 2809-764

Description:

Due to the still ongoing COVID-situation all over the world and the resulting travel restrictions, the SIMONA training events are held mainly online. Since the physical meetings with live-demonstration of sampling equipment and the implementation of the SIMONA harmonized protocols are of great importance for the efficient uptake of the project results by water management practitioners (authorities), small-group workshops were planned in the WP8, activity 2. : Capacity building: presentation, dissemination and integration of the SIMONA project results and upgrades within already existing events and small-group interactive training events in the PP. The workshop with training addresses all SIMONA national target groups that are active or interested in harmonized sampling, laboratory analyses and evaluation methods and are involved in the Danube River basin monitoring and management.

Project co-funded by the European Union (ERDF, IPA and ENI)

VENUE (2 hotels – please check the list of participants per hotel):

1) **Hotel Kurija Janković (https://www.kurija-jankovic.com/en/) – the "main hotel"**

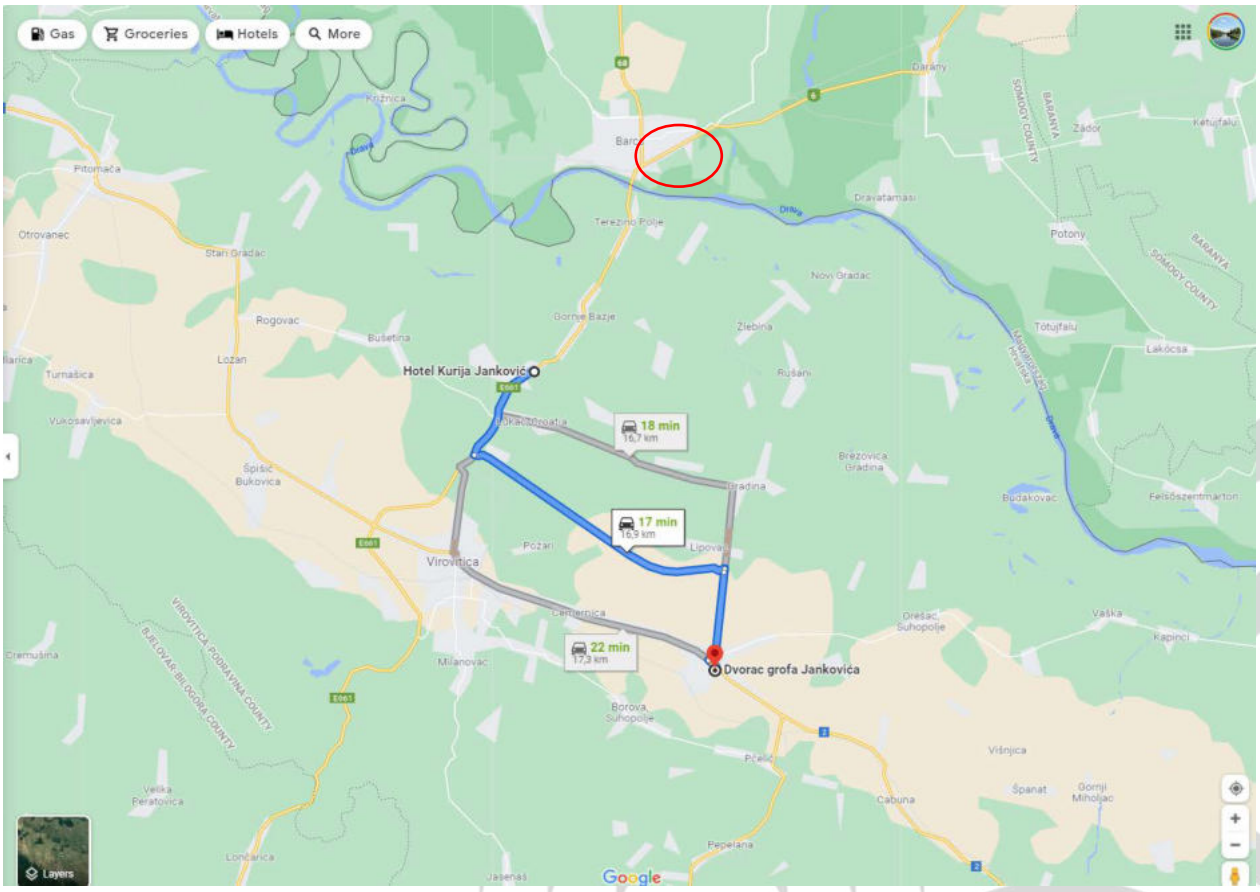
Kapela Dvor 22, 33406 Lukač, Virovitica, Croatia – **15 min drive to Barcs experimental site**

Google maps link: https://www.google.com/maps/place/Hotel+Kurija+Jankovi%C4%87/@45.8891704,17.4180838,17z/data=!3m1!4b1!4m8!3m7!1s0x4767e9956d38e1df:0x33f68f711b237959!5m2!4m1!1i2!8m2!3d45.8892068!4d17.420379

2) **Dvorac Janković Suhopolje (http://www.tzvpz.hr/centar-za-posjetitelje-dvorac-jankovic/)**

Vukovarska ul. 4, 33410, Suhopolje, Croatia - **17 min drive from the "main hotel" Kurija Janković**

Google maps link: https://www.google.com/maps/place/Dvorac+grofa+Jankovi%C4%87a/@45.8013263,17.4917996,14.25z/data=!4m5!3m4!1s0x4767ecdf922fe57f:0x12ebf261a79efb4b!8m2!3d45.7991343!4d17.4978078



AGENDA

12th October 2021

Visit SIMONA Experimental Site in Barcs

By 13.00	Arrival at Venue Hotel (Kurija Janković or Dvorac Janković)
13.00 - 14.00	Gathering of participants in the Hotel Kurija Janković and driving to Barcs (Hungary)
14.00 – 17.00	Visit the SIMONA Drava Test Area 'Barcs Experimental Site' (passive samplers, online automatic sensor system, JDS sediment box)
17.00 – 19.00	Driving to the designated hotels (Virovitica and Suhopolje; check-ins)
19.00	Dinner (catering in the Hotel Kurija Janković)

13th October 2021
Training

09.00-11.00	presentations in the conference room: • Dr Meta Dobnikar – Introduction to SIMONA project • Dr Ajka Šorša – SIMONA sampling and laboratory protocols, testing in Croatia • Dr Gyozo Jordan – Field Manual for DRB Baseline sampling • Dr Zsolt Szakacs – Upper Tisza Passive Sampling System • Mag Florjana Ulaga – Monitoring of suspended solids and turbidity in Slovenia • Dr Lidija Galović – Introduction to geology/geomorphology of the Drava basin area
11.00- 11.30	Driving from hotel to the location of SIMONA on-site sampling demonstration
11.30 – 13.00	A review of sampling equipment at the location followed by an on-site sampling demonstration and training activity at the small stream near Virovitica, provided by the International Training Group, and by the Local Training Group

Project co-funded by the European Union (ERDF, IPA and ENI)

MINUTES

Event: **SIMONA WP8 WORKSHOP WITH TRAINING**

Date: 12th -13th October 2021

Topic: Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols in Test Areas and Baseline Network sites

Type: On-site Training event; Virovitica, Croatia, Barcs (Hungary)

Organizer: dr. Gyozo Jordan, project scientific coordinator (HU-MATE),
Kristina Koret, LP communication manager (GEO-ZS)

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Meeting Minutes

12th October 2021

On the first day, Croatian and Slovenian partners with their invited stakeholders/ASPs gathered in the main hotel Kurija Janković in Virovitica and then drove to the Barcs demonstration site in Hungary where we met with the trainers' team - project scientific coordinator, accredited sampling expert (Balint Analitika Ltd.) and Romanian partners (RO-TUCN). Dr Gyozo Jordan, the project scientific coordinator explained shortly the scope of today`s meeting - to present the recent WP8 developments in the sediment sampling methods - the passive sampling and its upgrade and development in the SIMONA project. The training team presented and demonstrated the passive sampling system design in Barcs, which consists of JDS sediment box, passive samplers - membranes designed for the collection of PAHs, pesticides and heavy metals, and showed an online automatic sensor system. After the demonstration, we visited the Hungarian Water Authority Barcs Station where the water gauging station is in operation, where dr Jordan talked about the importance and criteria for passive floodplain and bottom sediment pore water sampling under WP8 acivities.

The meeting with the demonstration ended at 17.00.

13th October 2021

On the 2nd day, we started with the presentation section from 9.00 in the conference room of the Hotel Kurija Janković in Virovitica. Dr Meta Dobnikar, the SIMONA project manager, opened the section with few introductory words and expresses her gratitude for the participation of all attendees, after which followed a short presentation on the SIMONA project and its main achievements. Then she gave the word to dr Ajka Šorša, the leader of WP4 (Sampling and Laboratory protocols). Dr Šorša gave a presentation on the Sampling and Laboratory methods harmonisation within the SIMONA WP4. Since this presentation was already given on multiple occasions, she explained the content briefly but stressed out the protocols` main objectives and importance for the project`s demands such as the presented sampling protocol represents a proposal of a tool for harmonised monitoring of hazardous substances in DRB countries, completely aligned with the WFD demands, ISO standards, ICPDR needs and including the geological background and anthropogenic influences. She also talked about the experiences of testing the sampling protocol in the field - at two selected national sampling sites in Croatia. Lastly, she emphasised that the sampling protocol is a recommendation to be followed while pursuing the sediment sampling, but naturally, every designated monitoring location requires a site-specific approach.

The mentioned protocols presentation was followed by the presentation on the Field Manual of the Sampling Design by the project`s scientific coordinator dr. Gyozo Jordan. Dr Jordan mentioned again that all sampling and laboratory methods are completely aligned with the WFD, and that no "new" method was introduced in the protocols. Based on the mentioned protocols, and more importantly, based on the testing of the protocol in the test areas, and the DRB Baseline national sites sampling action, the Field Manual was developed. The form is of a step-by-step practical guidance document which has a purpose to be proposed for a long-term, regular, surveillance monitoring, not addressing the local but the overall contamination in the monitored water body. It contains a detailed guidance for sampling in general, and why it is important, the criteria of good sampling, how to prepare for the sampling and choose the appropriate site location, methodology guidance for each sediment type sampling including tools and equipment, typical mistakes and more. Regarding the floodplain sediment monitoring, dr Jordan mentioned that it is not a requirement of a WFD, but a suggestion, so this is how we also approached it in the protocols and manual. Besides the small rivers/stream sampling, the sampling guidance for the large river conditions is also included. More specifically, each sampling method is supported by 1. a manual, 2. a PowerPoint presentation and 3. a video. All of this is can also be accessed from mobile phones as the intention is to be easily accessible for the daily work of practitioners. Lastly, he showed the Field Manual video on the sampling of bottom sediments with vacuum corer, as an example. This video, and all others, are upgraded with additional texts on screen and inserted slides from PPT-s.

Dr Zsolt Szakacs shared the experiences of his sampling team in the Upper Tissa test area sediment sampling. In the beginning, he mentioned that the area consists of mountainous, hilly and lowland regions where were several obstacles to river sediment sampling. One of the main obstacles in choosing the appropriate sampling location was the fluctuation of water depths. The sampling sites were not chosen only based on the SIMONA protocol recommendations, but also on the potential source of heavy metal

pollution, since the Upper Tissa test area is mostly a former mining region. Dr Szakacs explained the installation process of the passive sampling system, which is the same as the one on the Drava test area demonstrated at this workshop. The installation was far more complex due to the already mentioned water level fluctuations (shallow or very deep rivers), floating vegetation, debris and branches. One of the advances in the installation process was linking the system to a visibly marked floatation device. The same is adopted with the JDS box, but it was also attached to the riverbank trees with wire ropes. The passive sampling system shown in the Barcs location at the Drava is more appropriate for big rivers.

Mag. Florjana Ulaga held a presentation on monitoring of suspended solids and turbidity in Slovenia to exchange her knowledge and experience in national monitoring with the SIMONA project team. Firstly, she provided the historical review of suspended load monitoring and mentioned that suspended load is being measured since 1954 while the monitoring of turbidity was introduced only after the big BOBER project in 2015. With the implementation of the BOBER project all monitoring stations across Slovenia were modernised (hydro-meteorological, water, etc).In the monitoring process, the most important is to calculate the balance of the sediments and the ongoing question on how to combine the monitoring of sediment quality and quantity still remains unsolved. Furthermore, she mentioned the measuring equipment - water traps with attached weights are installed at the bridge and thrown in the river. Then they automatically close and collect the suspended sediments. One litre of water can be collected, approximately 0,52 g of solid sediments on average which is good for quantity but not for quality measurements. For quality measurements 1g of suspended sediments is minimum. But, the focus of suspended sediments monitoring with water traps is on quantity. Florjana also mentioned the importance of measuring turbidity and added that new measuring equipment is designed for measuring turbidity every 10 minutes, as well as the measure of velocity which helps to calculate the discharge. Lastly, she added that many unresolved questions remain, such as what to do when measurement graphs show no correlation between turbidity and suspended sediments and many other unsolved peaks. Some general discussions arose on this matter and dr Zsolt Szakacs proposed the introduction of devices with spectroscopic measurements to passive sampling monitoring.

The last presentation was held by dr. Lidija Galović. This presentation intended to provide a short geological and geomorphological description of the Drava basin area as an introduction to our field demonstration. In short, the entire area is a big agricultural area with lots of big, artificially made channels, dug to prevent the loss of soil intended for agriculture. Most of the area is anthropogenic. Rivers are shallow but run very fast so they “undercut” the bottom and riversides, leaving very little or no place to take the samples (river bottom sediment). Also, the summers are very dry and vegetation also grows inside the river channels. Most of the channels in Virovitica county are filled with vegetation and almost no fine-grained material can be found. Since in the current period, the rain events are frequent all the sampling material is dissolved, not settled. At the moment it is very difficult to find any location appropriate for the real sediment sampling. Dr Galović added that the location chosen to show the demonstration of the sampling methodology, cannot be used as a “real-life” sampling station. Due to all mentioned reasons, it will serve only for the demonstrations of equipment and sediment sampling methods for the purposes of this event, but can not be applied to regular monitoring.

Project co-funded by the European Union (ERDF, IPA and ENI)

The presentations in the conference room ended at 10.50, after which all the participants gathered and headed to the designated demonstration location, in the vicinity of Virovitica city.

From 11.30 to 13.00 a review of sampling equipment took place at the chosen location (small, artificial stream nearby) followed by an on-site sampling demonstration and training activity, provided by the scientific coordinator dr. Jordan, Zoltan Vilagosi and our 2 partners from Romania (RO-TUCN). All theories on sediment sampling methodology of the SIMONA project presented in the conference room by dr. Jordan was put into practice in the field. All participants, especially the practitioners of sediment monitoring were engaged in some parts of this activity.

The event ended at 13.00.

Project co-funded by the European Union (ERDF, IPA and ENI)

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SIMONA

SIMONA WP8 WORKSHOP WITH TRAINING
12TH-13TH OCTOBER 2021
VIROVITICA, CROATIA

Danube Transnational Programme
Sediment-quality Information, Monitoring and Assessment System
to support transnational cooperation for joint Danube Basin water management

List of Participants
SIMONA WP8 Workshop with Training
12th October, Virovitica, Croatia

Nu.	Name	Organisation	E-mail	Signature
1.	Ajka Šorša	HR-HGI-CGS	asorsa@hgi-cgs.hr	
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6.	Florjana Ulaga	Slovenian Environment Agency	Florjana.Ulaga@gov.si	
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12.	Lidija Galović	HR-HGI-CGS	lgalovic@hgi-cgs.hr	

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Project co-funded by the European Union (ERDF, IPA and ENI)

Page 5 | 8

Interreg
Danube Transnational Programme
SIMONA

SIMONA WP8 WORKSHOP WITH TRAINING
12TH-13TH OCTOBER 2021
VIROVITICA, CROATIA

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Interreg
Danube Transnational Programme
SIMONA

SIMONA WP8 WORKSHOP WITH TRAINING
12TH-13TH OCTOBER 2021
VIROVITICA, CROATIA

Sediment-quality Information, Monitoring and Assessment System
to support transnational cooperation for joint Danube Basin water management

List of Participants
SIMONA WP8 Workshop with Training
13th October, Virovitica, Croatia

Nu.	Name	Organisation	E-mail	Signature
1.	Ajka Šorša	HR-HGI-CGS	asorsa@hgi-cgs.hr	
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Project co-funded by the European Union (ERDF, IPA and ENI)

Page 7 | 8

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Danube Transnational Programme
SIMONA

SIMONA WP8 WORKSHOP WITH TRAINING
12TH-13TH OCTOBER 2021
VIROVITICA, CROATIA

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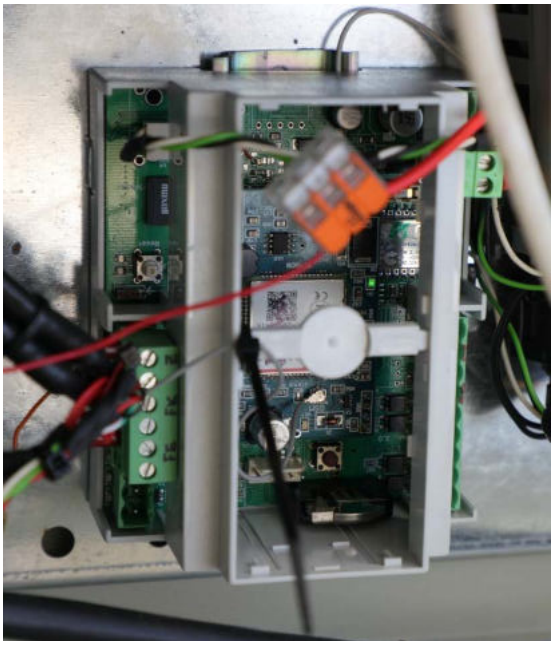
17.	Zoltan Vilagossi	BÁLINT ANALITIKA KFT.	mintavetel@balintanalitika.hu	
18.	Zsolt Szakacs	RO-TUCN	szakacsz@yahoo.com	

PHOTOS

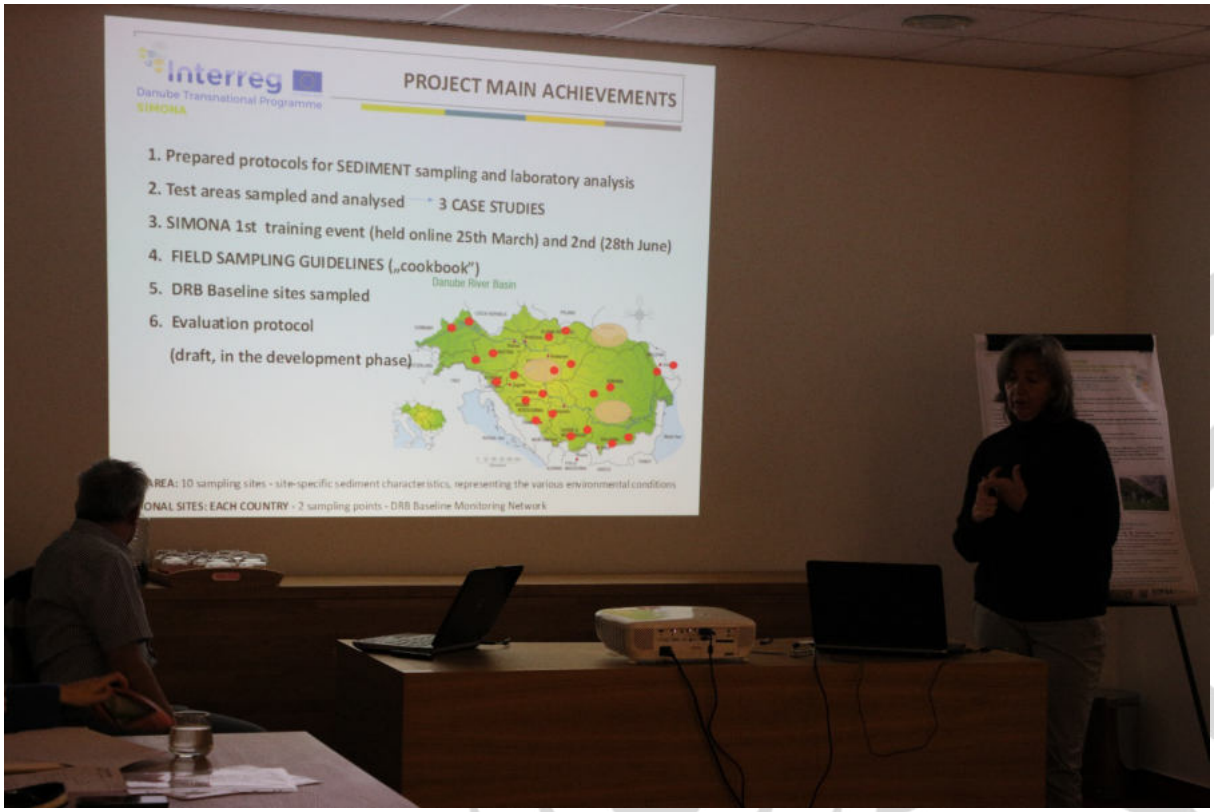
Project co-funded by the European Union (ERDF, IPA and ENI)



Project co-funded by the European Union (ERDF, IPA and ENI)

Project co-funded by the European Union (ERDF, IPA and ENI)

Project co-funded by the European Union (ERDF, IPA and ENI)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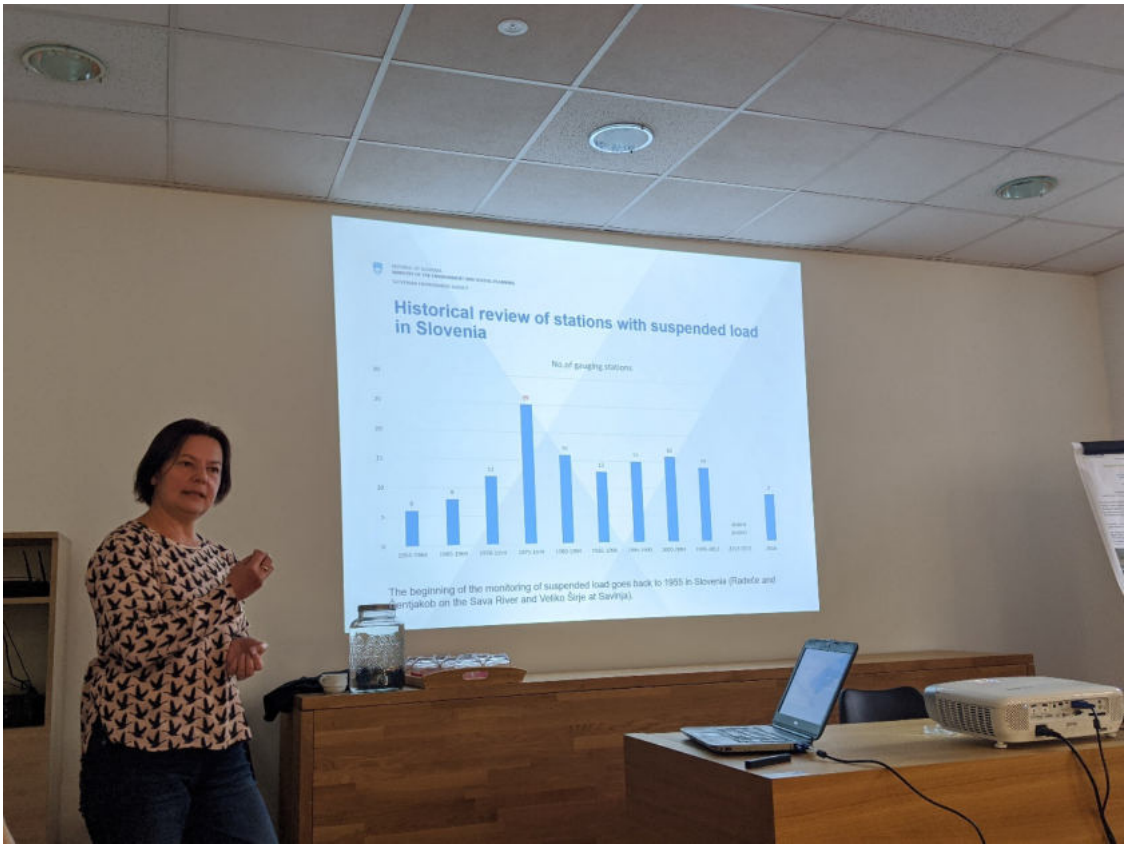
SIMONA
PROJECT MAIN ACHIEVEMENTS
1. Prepared protocols for SEDIMENT sampling and laboratory analysis
2. Test areas sampled and analysed
3 CASE STUDIES
3. SIMONA 1st training event (held online 25th March) and 2nd (28th June)
4. FIELD SAMPLING GUIDELINES („cookbook")
5. DRB Baseline sites sampled
6. Evaluation protocol
(draft, in the development phase)
Danube River Basin



Project co-funded by the European Union (ERDF, IPA and ENI)


SIMONA WP8 SMALL-GROUP WORKSHOP WITH TRAINING
Upper Tisa sampling
Sampling sites choosen according to SIMONA Protocol and potential HM contamination sources
3 of the proposed sites had to be changed after preliminary site inspection
mountainous, hilly and lowland-like conditions

Project co-funded by the European Union (ERDF, IPA and ENI)

Danube Transnational Programme
Sediment-quality Information, Monitoring and Assessment System
to support transnational cooperation for joint Danube Basin water management

INVITATION

TO

SIMONA TEAM – HUNGARIAN

STAKEHOLDERS

WP8 SMALL-GROUP WORKSHOP WITH TRAINING

22TH OCTOBER 2021

04TH NOVEMBER 2021

Debrecen, HUNGARY

Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols in Test Areas and Baseline Network sites

Project co-funded by the European Union (ERDF, IPA and ENI)

Event: SIMONA WP8 WORKSHOP WITH TRAINING

Date: 22th October 2021, 04th November 2021

Topic: Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols in Test Areas and Baseline Network sites

Type: On-site Training event; Pocsaj, Hungary
online (if needed)

Organizer: Dr. Gyozo Jordan, project scientific coordinator (HU-MATE),
Dr. Zsófia Kovács, delegate of General Directorate of Water Management (ASP-HU)
Kristina Koret, LP communication manager (GEO-ZS)

Contact info:
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Geological Survey of Slovenia
Dimičeva street 14, 1000 Ljubljana
Department of Mineral Resources
Tel: +3861/ 2809-764

Description:

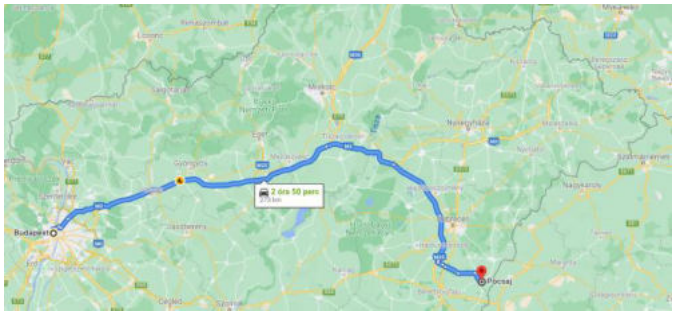
Due to the still ongoing COVID-situation all over the world and the resulting travel restrictions, the SIMONA training events are held mainly online. Since the physical meetings with live-demonstration of sampling equipment and the implementation of the SIMONA harmonized protocols are of great importance for the efficient uptake of the project results by water management practitioners (authorities), small-group workshops were planned in the WP8, activity 2. : Capacity building: presentation, dissemination and integration of the SIMONA project results and upgrades within already existing events and small-group interactive training events in the PP. The workshop with training addresses all SIMONA national target groups that are active or interested in harmonized sampling, laboratory analyses and evaluation methods and are involved in the Danube River basin monitoring and management.

Project co-funded by the European Union (ERDF, IPA and ENI)

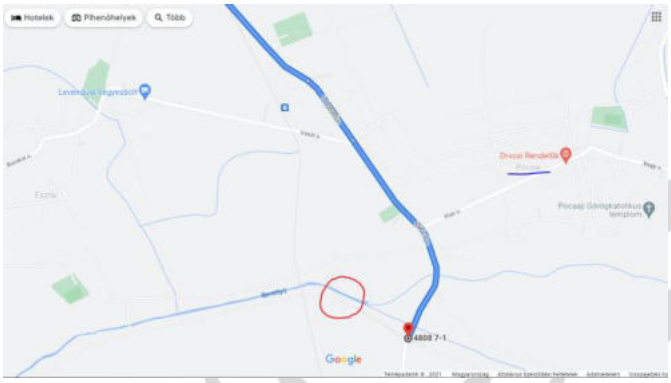
VENUE (Training site – Pocsaj, Berettyó River)

1) Berettyó River (Hungarian Transboundary Water Monitoring point)

Google maps link: https://www.google.com/maps/dir/Budapest/Pocsaj,+4125/@47.8366878,20.5724374,8.54z/data=!4m14!4m13!1m5!1m1!1s0x4741c334d1d4cfc9:0x400c4290c1e1160!2m2!1d19.040235!2d47.497912!1m5!1m1!1s0x4747ac509f064cb7:0x400c4290c1e2540!2m2!1d21.8122198!2d47.2851817!3e0



Google maps link:
https://www.google.com/maps/dir/Budapest/47.2761082,21.8027952/@47.2840421,21.7977448,14.92z/data=!4m9!4m8!1m5!1m1!1s0x4741c334d1d4cfc9:0x400c4290c1e1160!2m2!1d19.040235!2d47.497912!1m0!3e0



GPS coordinate (Latitude 47.278676; Longitude 21.796930)

AGENDA

22th October 2021
National Laboratory Meeting- online
General Directorate of Water Management (HU) Main Room

You can also join the meeting online via Skype by clicking on the following link:
https://meet.vizugy.hu/skype2/OY7LJC4O

AGENDA:

09.00-09.10: Welcome – Ministry of Interior (Réka Gaul, Head of Department)

09.10-10.00: Surface waters WFD water quality monitoring concept for 2022

- chemical monitoring (István György Tóth, Chief Technical Officer)
- biological monitoring (Andrea Zagyva Tünde, Head of Department)

10.00-10.30: Questions and Answers

10.30-10.45: WFD groundwater quality monitoring concept for 2022 (Eszter Pulay, Water Quality Protection Officer)

10.45-11.00: Questions, answers

11.00-11.15: *Coffee Break*

11.15-11.45: Presentation of the SIMONA project (Győző Jordán, Zsófia Kovács)

11.45-12.00: Questions and answers

12.00- 12.10: Closing, negotiating next steps

04th November 2021
Training

10.00-14.00	A review of sampling equipment at the location followed by an on-site sampling demonstration and training activity at the Berettyó River near Pocsaj, provided by the International Training Group, and by the Local Training Group.

Project co-funded by the European Union (ERDF, IPA and ENI)

MINUTES

Event: **SIMONA WP8 WORKSHOP WITH TRAINING**

Date: 22th October 2021, 04th November 2021

Topic: Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols in Test Areas and Baseline Network sites

Type: On-site Training event; Pocsaj, Hungary
online (if needed)

Organizer: Dr. Gyozo Jordan, project scientific coordinator (HU-MATE),
Dr. Zsófia Kovács, delegate of General Directorate of Water Management (ASP-HU)
Kristina Koret, LP communication manager (GEO-ZS)

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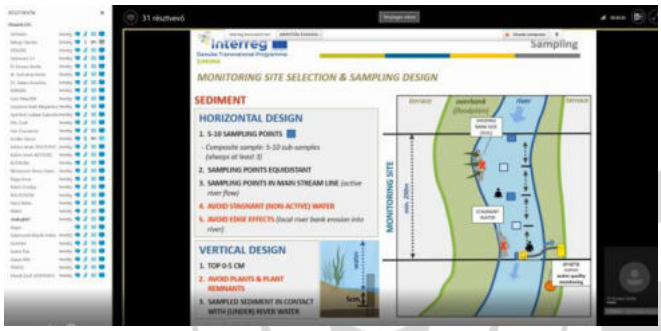
Department of Mineral Resources
Tel: +3861/ 2809-764

Meeting Minutes

22th October 2021

The lecture room component of the small-group interactive training and workshop event was held on online on 22.10.2021 organised by the Hungarian Water Authorities (HU-OVF) with the participation of all the Regional Environmental Government Laboratories authority stakeholder who are responsible for the sediment quality monitoring in the country. Gyozo Jordan presented it as part of the online meeting - The results of the bottom sediment suspended sediment and floodplain sediment. Lastly, he showed the Field Manual video on the sampling of bottom sediments with vacuum corer, as an example.



The meeting ended at 12:10.

04th November 2021

The small-group interactive field training and workshop event was held on 04.11.2021 in Debrecen, Hungary, (organized by HU-OVF) and the International Training Group. It was dedicated to the Hungarian authorities, and other interested parties and stakeholders. The participants of the event represented (1) Regional Water Authorities, (2) Regional National Environmental Laboratory in Miskolc (northern Hungary), and (3) Regional National Environmental Laboratory in Debrecen (eastern Hungary).

From 11.30 to 13.00 a review of sampling equipment took place at the chosen location (Berettyó River, Pocsaj) followed by an on-site sampling demonstration and training activity, provided by the scientific coordinator Dr. Gyozo Jordan, Dr. Zsófia Kovács and Péter Szabó (ELTE). All participants, especially the practitioners of sediment monitoring were engaged in some parts of this activity.

Water Authorities experts were discussed with the SIMONA team during the training on the following topics:

- sediment sampling of the stagnant water body
- cross-contamination (for sampling vessels)
- recommendation to use a sampling vessel - use of aluminum foil
- At what water level is sediment sampling recommended?

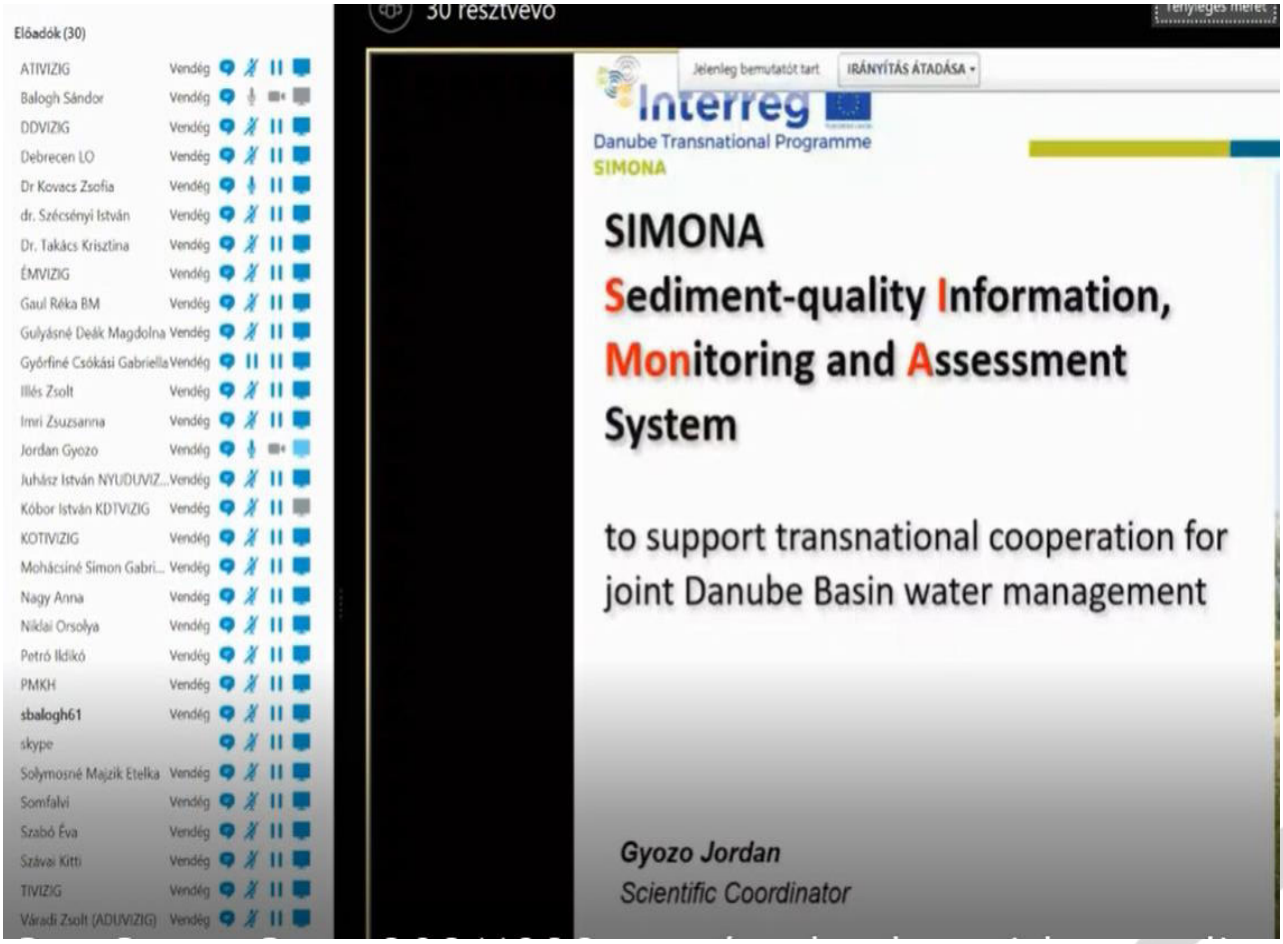
The event ended at 14.00.

Project co-funded by the European Union (ERDF, IPA and ENI)

List of Participant National Laboratory Meeting

October 22, 2021 HU-OVF Main Room/Online

You can also join the meeting online via Skype by clicking on the following link: https://meet.vizugy.hu/skype2/OY7LJC4O



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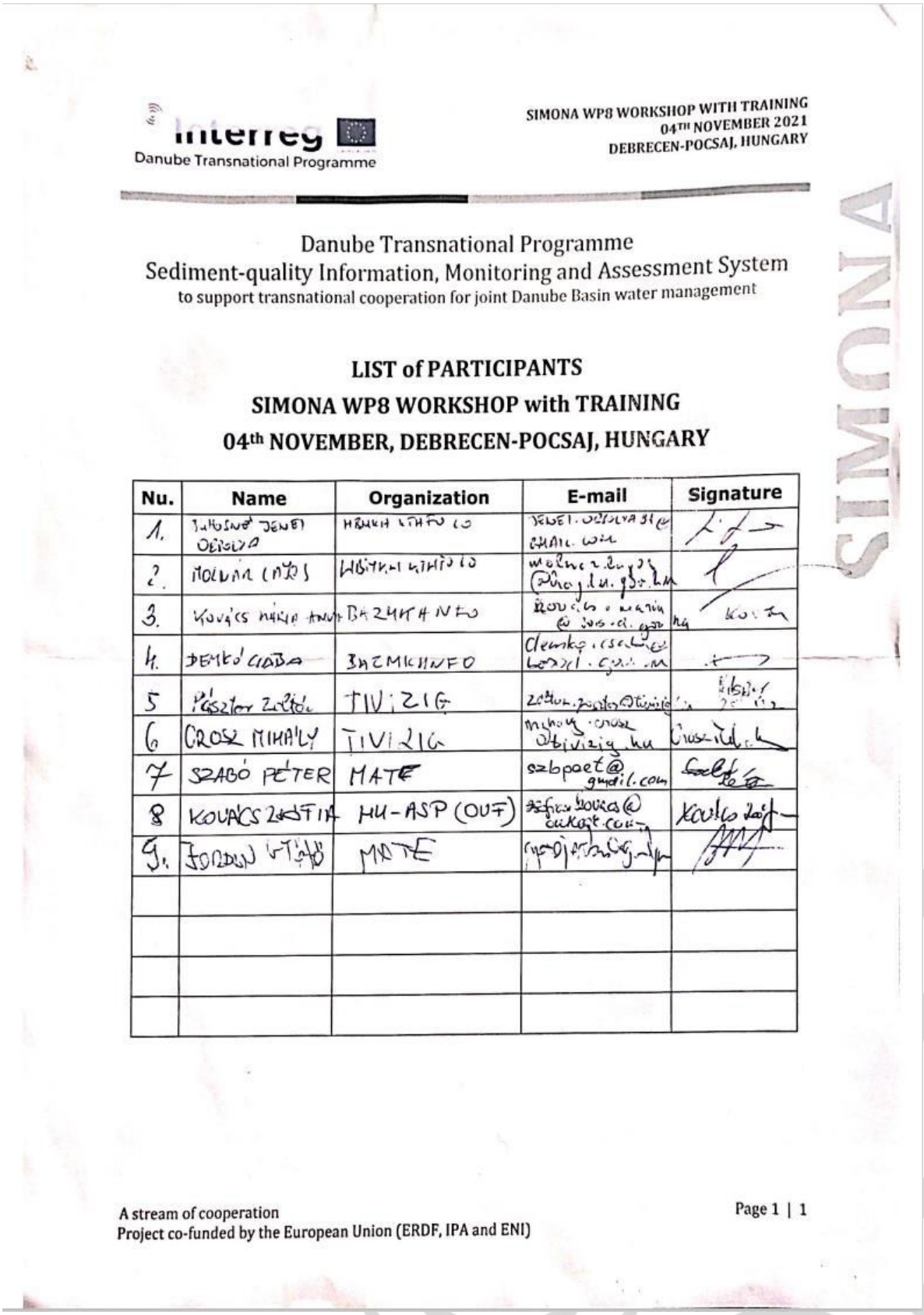

Danube Transnational Programme

SIMONA WP8 WORKSHOP WITH TRAINING
04TH NOVEMBER 2021
DEBRECEN-POCSAJ, HUNGARY

Danube Transnational Programme
Sediment-quality Information, Monitoring and Assessment System
to support transnational cooperation for joint Danube Basin water management

LIST of PARTICIPANTS

SIMONA WP8 WORKSHOP with TRAINING

04th NOVEMBER, DEBRECEN-POCSAJ, HUNGARY

Nu.	Name	Organization	E-mail	Signature
1.				
2.				
3.				
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5				
6				
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9.				

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Project co-funded by the European Union (ERDF, IPA and ENI)

Page 1 | 1

PHOTOS

Project co-funded by the European Union (ERDF, IPA and ENI)

Danube Transnational Programme
Sediment-quality Information, Monitoring and Assessment System
to support transnational cooperation for joint Danube Basin water management

INVITATION

TO

SIMONA TEAM – SLOVAKIAN AND CZECH STAKEHOLDERS

WP8 SMALL-GROUP WORKSHOP WITH TRAINING

24TH-25TH NOVEMBER 2021

Morava River, Czech-Slovak border, Czech Republic

Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols in Test Areas and Baseline Network sites

Project co-funded by the European Union (ERDF, IPA and ENI)

Event: SIMONA WP8 WORKSHOP WITH TRAINING

Date: 24th -25th November 2021

Topic: Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols in Test Areas and Baseline Network sites

Type: On-site Training event: Morava River, Czech-Slovak border, Czech Republic
Online Training event: lecture room workshop with presentations

Organizer: dr. Gyozo Jordan, project scientific coordinator (HU-MATE),
Kristina Koret, LP communication manager (GEO-ZS)

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Geological Survey of Slovenia
Dimičeva street 14, 1000 Ljubljana
Department of Mineral Resources
Tel: +3861/ 2809-764

Description:

Due to the still ongoing COVID-situation all over the world and the resulting travel restrictions, the SIMONA training events are held mainly online. Since the physical meetings with live-demonstration of sampling equipment and the implementation of the SIMONA harmonized protocols are of great importance for the efficient uptake of the project results by water management practitioners (authorities), small-group workshops were planned in the WP8, activity 2. : Capacity building: presentation, dissemination and integration of the SIMONA project results and upgrades within already existing events and small-group interactive training events in the PP. The workshop with training addresses all SIMONA national target groups that are active or interested in harmonized sampling, laboratory analyses and evaluation methods and are involved in the Danube River basin monitoring and management.

Project co-funded by the European Union (ERDF, IPA and ENI)

VENUE (Gauging station on the Morava River, Czech and Slovakia border Lanžhot/Brodské):

1) **Gauging Station on the Morava River near the Czech-Slovakia Border (Lanžhot/Brodské)**

Gauging Station is located on the right bank on the Czech side of the border –approx. 50 min drive from Brno, 45 min drive from Bratislava and 3 hour from Budapest

Google maps link:

https://www.google.com/maps/place/CZE+425+Lan%C5%BE-hot%2F%2FSVK+425+Brodsk%C3%A9/@48.6874935,16.9893488,19z/data=!4m5!3m4!1s0x476cd3c212af3997:0xf148a84195092c88!8m2!3d48.6870974!4d16.9894237

Project co-funded by the European Union (ERDF, IPA and ENI)

AGENDA

24th November 2021

On-line Workshop and Training

09.00-11.00	presentations in the virtual conference room: • Dr Meta Dobnikar – introduction on the SIMONA project • Dr Gyozo Jordan – SIMONA Protocols and Field Manual for DRB Baseline sampling • Dr Zsofia Kovacs – SIMONA Passive Sampling System • Dr Zsolt Szakacs – Upper Tisza Passive Sampling System – A Case Study • Dr Igor Striček – Sediment sampling and monitoring in Slovakia • Dr. Pavel Hucko - Sediment sampling from water reservoirs in Slovakia • Dr Libor Mikl– Sediment sampling and monitoring in the Czech Republic *NOTE: Each presentation is 15-20 minutes.*
11.00- 11.30	Discussion, Stakeholder questions and answers

25th November 2021

On-site Field Training

By 13.00	Arrival at Venue (Morava River, Czech-Slovak border, Czech Republic)
13.00 – 16.00	A review of sampling equipment at the location followed by an on-site sampling demonstration and training activity at the Morava River in the Czech Republic, near the Czech-Slovak border. Field training and demonstration provided by the International Training Group, and by the Local Training Group
16.00	Departure from site at 16:00 at the latest. *NOTE: Experience shows that ca. 2 hours is sufficient for the field training.*

Project co-funded by the European Union (ERDF, IPA and ENI)

MINUTES

Event: SIMONA WP8 WORKSHOP WITH TRAINING

Date: 24th -25th November 2021

Topic: Implementation of SIMONA Transnationally Harmonized Sediment Sampling, Laboratory Analyses and Evaluation Protocols in Test Areas and Baseline Network sites

Type: On-site Training event: Morava River, Czech-Slovak border, Czech Republic
Online Training event: lecture room workshop with presentations

Organizer: dr. Gyozo Jordan, project scientific coordinator (HU-MATE),
Kristina Koret, LP communication manager (GEO-ZS)

24th November

Introduction

Dr Meta Dobnikar, the SIMONA project manager presented the scope of the SIMONA project as an introduction to the WP8 Workshop for Slovakian and Czech stakeholders. She provided general information about the project and its implementation – main project achievements, the impact of Coronavirus on project activities and project closure.

Dr Gyozo Jordan, the project`s scientific coordinator presented the SIMONA sampling and laboratory protocols and the sampling design presented in the Field Manual. Based on the mentioned protocols, and more importantly, based on the testing of the protocol in the test areas, and the DRB Baseline national sites sampling action, the Field Manual was developed. The form of the Manual is a step-by-step practical guidance document which has a purpose to be proposed for a long-term, regular, surveillance monitoring, not addressing the local but the overall contamination in the monitored water

Dr Zsofia Kovacs (ASP, HU-OVF) presented the WP8 Sediment Quality Upgrade and Capacity Building. The upgraded activities began in June 2021. The evaluation upgrade activities were mostly marked by the development of a passive sampling system which is employed at 3 test areas and capacity building is related to the organisation of small-group training events on sediment monitoring methodology.

Dr Zsolt Szackas (RO-TUCN PP) had a presentation on the experiences from Upper Tissa Test Area sampling and additional value-added activities in SIMONA.

Dr Igor Striček (SK-SGIDS PP) held a presentation on the general status of sediment monitoring in Slovakia and the scope of the SIMONA project (national sites sampling experience). The monitoring of stream sediments carried out by SK-SGIDS was presented (the selection of sampling sites/water bodies, water reservoirs, sampling and laboratory analysis methods, the Slovakian legislative framework for the monitoring and sampling equipment).

Project co-funded by the European Union (ERDF, IPA and ENI)

Dr Pavel Hucko presented the sediment sampling from water reservoirs in Slovakia through videos– the type and operation of sediment sampling equipment for bottom sediments from reservoirs.

Dr Libor Mikl gave a presentation on sediment sampling and monitoring in the Czech Republic. He also compared the similarities and differences of routine sediment sampling methods in Czech with the ones proposed in the SIMONA project. Almost the entire sampling process was aligned with the SIMONA sampling protocol and field manual documents. The main differences are in the suspended sediment sampling. The sampling equipment used was also described.

The online meeting ended at 11.30.

25th November

On the second day, the onsite field training took place on the Morava River in the Czech Republic (the location of the gauging station is shown on the map below the agenda).

Project co-funded by the European Union (ERDF, IPA and ENI)

List of Participants
SIMONA WP8 WORKSHOP WITH TRAINING, CZECH REPUBLIC
24TH – 25TH November 2021, ONLINE & ON-SITE

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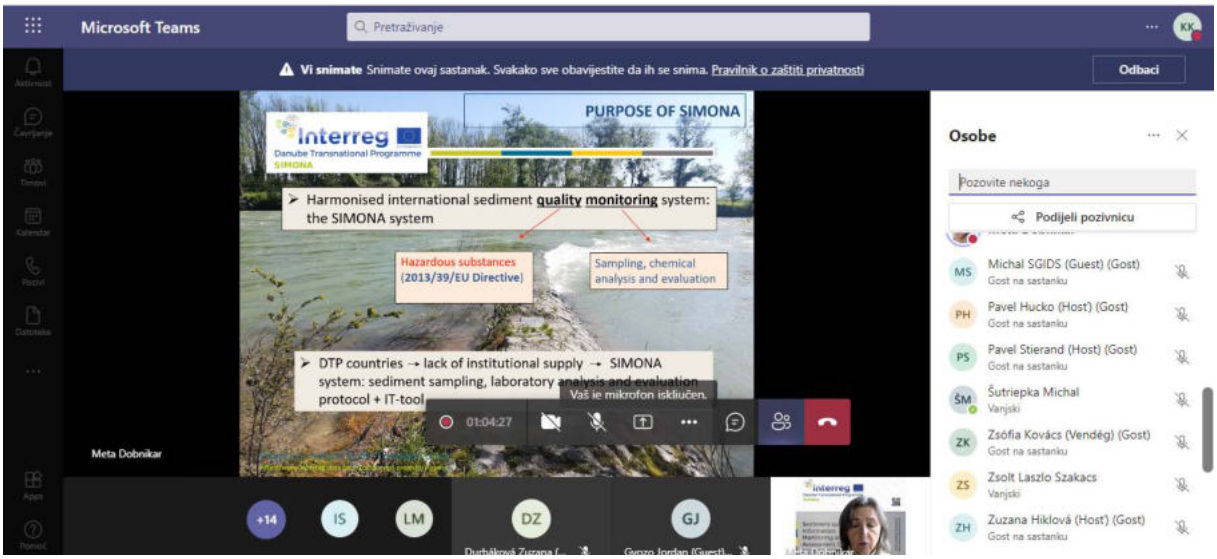
PICTURES


Microsoft Teams
Pretraživanje
Vi snimate Snimate ovaj sastanak. Svakako sve obavijestite da ih se snima. Pravilnik o zaštiti privatnosti
Odbaci
PURPOSE OF SIMONA
Harmonised international sediment quality monitoring system: the SIMONA system
Hazardous substances (2013/39/EU Directive)
Sampling, chemical analysis and evaluation
DTP countries → lack of institutional supply → SIMONA system: sediment sampling, laboratory analysis and evaluation protocol + IT-tool
Vaš je mikrofon isključen.
01:04:27
Meta Dobnikar
Osobe
Pozovite nekoga
Podijeli pozivnicu
Michal SGIDS (Guest) (Gost)
Pavel Hucko (Host) (Gost)
Pavel Stierand (Host) (Gost)
Šutriepka Michal
Zsófia Kovács (Vendég) (Gost)
Zsolt Laszlo Szakacs
Zuzana Hiklová (Host) (Gost)

All training photos, videos and presentations are available at:
https://drive.google.com/drive/folders/1vxgxIasP6o-P5I74Xmf_e30ND7qxeBvd?usp=sharing

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