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Abbreviations

CEC	Contaminants of Emerging Concern
CSIC	Institute of Environmental Assessment and Water Research, The Spanish National
	Research Council
ERA	European Research Area
EU	European Union
ICAPP	International Conference on Advanced Production and Processing
IF	Impact Factor
KPI	Key Performance Indicator
NGO	Non-Governmental Organization
OA	Open Access
PST	Project Steering Team
TFNS	University of Novi Sad, Faculty of Technology of Novi Sad
UNL	NOVA University of Lisbon
WP	Work Package





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1. Executive summary

This deliverable describes 15-month implementation of the TwiNSol-CECs Work Package (WP) 6, which main objectives are to promote the TwiNSol-CECs project and its achievements accomplished by the consortium partners jointly working on different aspects of the environmental presence of Contaminants of Emerging Concern (CECs), to raise the visibility of the researchers of the coordinating University of Novi Sad, Faculty of Technology (TFNS) and the institution itself within European Research Area (ERA), to attract the interest for partnerships with relevant sectors, and to increase public awareness about risks of the environmental occurrence of CECs and the importance of public investments in green solutions for achieving a toxic-free environment. Scientific community, stakeholders, and general public have been identified as main target groups. To effectively reach these target groups, a diverse set of dissemination tools have been employed; for the scientific community, this includes the following activities achieved in the first reporting period: one paper in an international journal, 10 presentations at national, regional, and international scientific events, hosting of the 1st TwiNSol-CECs Workshop and publication of the Workshop's Book of Abstracts. Stakeholders have been involved in an informational session of the "Club of TwiNSol-CECs Interest". Wider public has been reached through the project website and the social media platforms. Additionally, the project banner, brochure, and the 1st Newsletters were prepared and used for spreading the main information of the project with visual identities of the EU funding and the involved partner institutions.

In the Introduction of the document, background information about the objectives and tasks of WP6 are presented, followed by description of the performed activities within each task of WP6 and achieved results, which are compared with the foreseen relevant key performance indicators.





2. Introduction

The overall objective of TwiNSol-CECs is to raise scientific and innovation excellence of TFNS in various aspects of the CECs research through networking with 2 top-leading EU partners, Institute of Environmental Assessment and Water Research of the Spanish National Research Council (CSIC) and Nova University of Lisbon (UNL), to integrate TFNS into broader EU networks of excellence, and contribute to national and regional scientific and economic growth and well-being. To maximize the project impact, a series of activities for transmitting the research findings and the project achievements is planned, using different tools, explained together with target audiences in the public deliverable D1.3 "Plan for Dissemination, Exploitation and Communication" published in the 6th project month (January 2023). The overall goals of these "transmitting" activities are to make the project results public:

- to maximize the project impacts, contributing to the advancement of the state of the art in domain of project interest (dissemination), which are primarily the environmental resources monitoring of CECs and the related removal technologies from water,
- to share the skills, data, and knowledge with stakeholders and potential end-users (exploitation) helping in tackling the problem of the environmental pollutants' distribution in compliance with the European Green Deal commitment for transition to zero-pollution environment, with ultimate benefits for society and economy, and
- to raise general awareness on environmental problems and the importance of research public investments, for changing behaviors to develop more sustainable societies (communication).

The "transmitting" activities are gathered within WP6 of the project work plan coordinated by TFNS; the main objectives of WP6 are set as follows:

- To enhance the visibility of the project results and to raise reputation, research profiles and attractiveness of TFNS, boosting the position of TFNS within ERA,
- To achieve sustainable impact of TwiNSol-CECs fostering the partnership with sectors of interest,
- To raise the awareness of citizens on ubiquitous occurrence of CECs and necessities for public investments in green solutions for transition towards zero-pollution, toxic free environment.

The activities within WP6 started in the first project month, and are grouped in six tasks as presented in Table 1.

Table 1 List of WP6 tasks and the lead partner

Task 6.1. Presentation of the project via internet	TFNS
Task 6.2. Presentation of the project results to the scientific community	CSIC
Task 6.3. Preparation and distribution of the project promotional material	TFNS
Task 6.4. Organization of the project events	TFNS
Task 6.5. Communication and clustering activities – 'Club of TwiNSol-CECs interest'	UNL
Task 6.6. Outreach activities	TFNS

This mid-term report on the activities completed within the first 15 project months is created following the list of WP6 tasks (Table 1).





During the project, the performed "transmitting" activities have been tracked by listing them in the internal project document (excel format) in which for every performed activity, the following data have been recorded as explained¹: name (title), date of occurrence/publication, partner/persons associated with the activity, short description, and, if available or applicable, related link and size of target group.

For checking the progress, the key performance indicators (KPI) as indicated in Table 2 have been followed.

Table 2. Planned key performance indicators (KPI) for project "transmitting" activities and the number of the accomplished ones in the first 15 project months (PMs)

	KPI (min)	KPI
	value over	value
Key performance indicator, KPI	3 years of	achieved
	the project	in 15
	lifetime	PMs
Project website	1	1
Project social network profiles	5	6
Project brochures	2	1
Roll-up banner	1	2
Newsletter (no.1 and no.2)	2	1
Posters announcing project events	6	3
Manuscripts submitted to full OA publications	5	1*
Number of the TFNS researchers' attendances at leading international/regional (national) conferences	10/5	2/8**
Keynote lectures of the TFNS researchers at scientific conferences	3	1
Number of international scientific events organized at TFNS/number of attendees	4/100	1/58
Number of summer schools organized at TFNS/number of attendees	2/50	1/28
Number of meetings within "Club of TwiNSol-CECs interest"	3	1
Number of stakeholders (legal entities) involved in events organized at TFNS and initially included in "Club of TwiNSol-CECs interest"	4	11
Number of open access public events/number of attendees	2/50	1/20

^{*}published

**not including the participation in 1st TwiNSol-CECs Workshop

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¹ https://twinsol-





3. Presentation of a project via internet

3.1 Project official website

Initial proposal of the project website content was agreed in the first project month (August 2022), and the site was launched in September 2023. The link for the website is:

http://www.twinsol-cecs.com/

All pages of the website were finished by the 6th project month where Deliverable 6.1 on the website launching, and creation of the project social media profile was published².

The TwiNSol-CECs website (Figure 1 and 2) is designed to offer an easy and complete overview of the project and clear access to all its activities and announcements of the project events and achievements. It contains the main visual identity elements of the project (logo) and the mandatory EU emblem and disclaimer.

Password protected private platform accessible from the public website is also created to enhance the information and data exchange among the TwiNSol-CECs partners, facilitating internal coordination and representing the project documents repositorium. Privacy policy is clearly displayed.

Project achievements in the form of deliverables, reports, and publications have been published under webpage Results/Deliverables (listed under "Project Deliverables", "Project Reports or Activities", or "Project Publications", respectively). The Results/Deliverables section offers the possibility of free download of all the project documents designated as public (i.e. the only restriction is to the sensitive deliverables). At the home page, there is link with "Timetable" that offers the visitors possibility to follow the news as their appeared on the website, whereas "Bibliography" tab leads to the "library" of the project publications, including papers, abstracts, brochure, newsletter, and book of abstracts.

² https://twinsol-





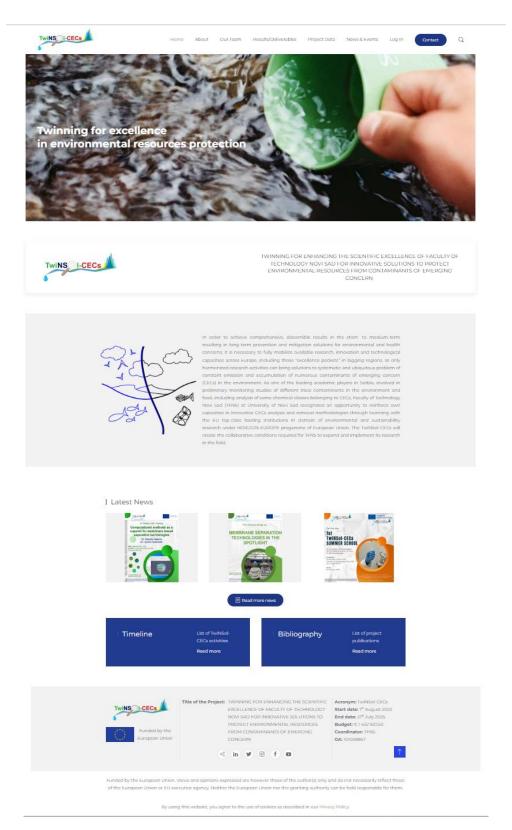


Figure 1 The home page of the TwiNSol-CECs website





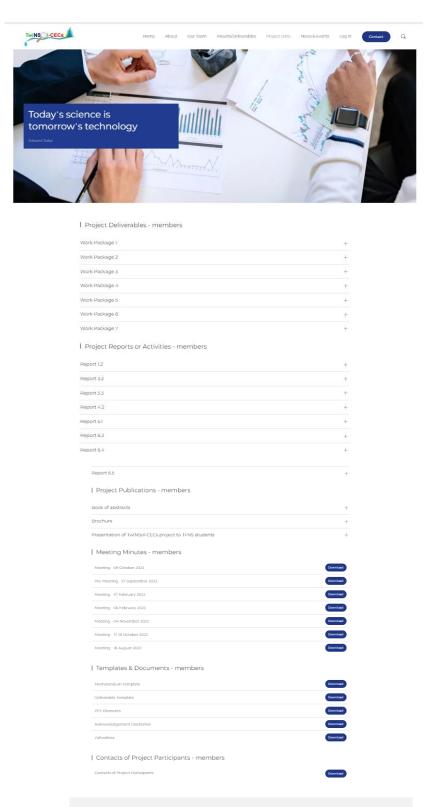


Figure 2 Password protected private platform for project team members

TwiNS I-CECs





The report on the website analytics is presented in Figure 3.

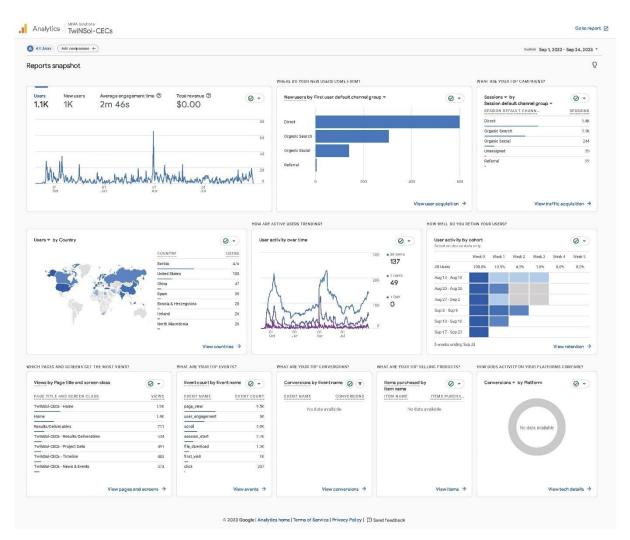


Figure 3 TwiNSol-CECs official project website traffic

3.2 Social network profiles of TwiNSol-CECs

Social network profiles of the project have been established from the project start, and they have been updated with news on the project activities and interesting facts, coinciding with the TwiNSol-CECs interests in the environmental resources' protection and sustainable development. The report on launching of the social media profiles can also be found in the deliverable 6.1³.

cecs.com/images/documents/d6_1_launching_of_the_project_website_and_the_social_media_network_profiles-final-jan2023.pdf

³ https://twinsol-





The TwiNSol-CECs Consortium established pages, profiles, and accounts on following social media platforms:

Twitter: https://twitter.com/twinsolcecs22

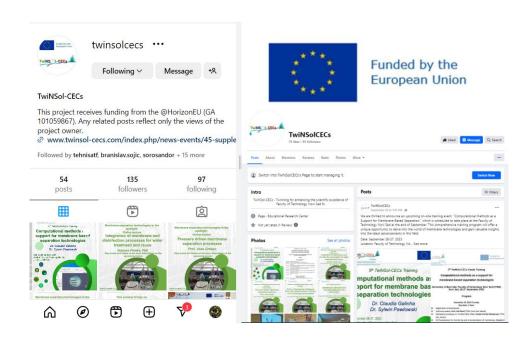
Instagram: https://www.instagram.com/twinsolcecs/ Facebook: https://www.facebook.com/Twinsolcecs

Research Gate: https://www.researchgate.net/profile/Twinsol-Cecs LinkedIn: https://www.linkedin.com/in/twinsol-cecs-3a6267249/

YouTube: https://www.youtube.com/@twinsol-cecs

The mandatory visual identity elements (the project logo, EU emblem and disclaimer) are clearly displayed on all the profiles.

Social media posts/reels/photos are prepared frequently, and so far, 50+ have been published and there are more than 100 followers by now (Figure 4).







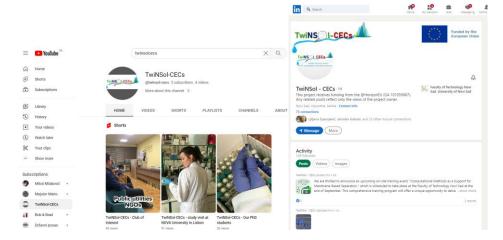


Figure 4 Some social network profiles of TwiNSol-CECs





4. Presentation of the project results to the scientific community

4.1. Presentation at the scientific events

Presentation of the project research to the scientific community in the first 15 months of the project was achieved through scientific papers, poster and oral presentations at well-established international and regional conferences (followed by publications of the abstracts or the papers in the books of the events). The summary of these contributions are given in Table 3.

Table 3 List of publications for the scientific audience

	Performed activity	Link
1	Book of Abstracts. 1st TwiNSol-CECs Workshop Section -Scientific publication	
	Short description - Book of Abstracts	https://zenodo.org/record/8246433
	Date - 20.10.2022	
2	D. Rakić, I. Antić, J. Živančev, M. Buljovčić, Z. Šereš, N. Đurišić-Mladenović, Py-GC-MS application for microplastics identification and quantification in water samples, Central European Congress on Food (CEFood) (11; Čatež ob	https://zenodo.org/records/10013492
	Savi; 2022) Date - 27-30/09/2022	
3	N. Đurišić-Mladenović, Z. Šereš, B. Pajin, J. Živančev, N. Maravić, I. Antić, Twinning for excellence in protection of environmental resources: TwiNSol-CECs, 1st TwiNSol-CECs Workshop, Advance multicompound analyses and novel solutions for protection of environmental resources with contaminants of emerging concern in focus, Book of Abstracts, p.13, 20-21 October 2022, Novi Sad	https://zenodo.org/record/8246433
4	J. Živančev, I. Antić, M. Buljovčić, D. Rakić, N. Đurišić-Mladenović, analysis of CECs in the environment of Western Balkans, 1st TwiNSol-CECs Workshop, Advance multicompound analyses and novel solutions for protection of environmental resources with contaminants of emerging concern in focus, Book of Abstracts, 20-21 October 2022, Novi Sad	https://zenodo.org/record/8246433
5	S. Panić, M. Petronijević, N. Đurišić-Mladenović, The development strategies for nano-engineered heterogeneous catalysts for wastewater treatment – towards greener approach, 1st TwiNSol-CECs Workshop, Advance multicompound analyses and novel solutions for protection of environmental resources with contaminants of emerging concern in focus, Book of Abstracts, p. 21, 20-21 October 2022, Novi Sad	https://zenodo.org/record/8246433
6	N. Maravić, Z.Šereš, B. Pajin, D. Šoronja Simović, N. Đurišić-Mladenović, J. Šurlan, Membrane processes in water treatment, 1st TwiNSol-CECs Workshop, Advance multicompound analyses and novel solutions for protection of environmental resources with contaminants of emerging concern in focus, Book of Abstracts, p.23, 20-21 October 2022, Novi Sad	https://zenodo.org/record/8246433
7	V. M. Vasić, D. V. Kukić, M. B. Šćiban, Biomaterials in water and wastewater treatment, 1st TwiNSol-CECs Workshop, Advance multicompound analyses and novel solutions for protection of environmental resources with contaminants of emerging concern in focus, Book of Abstracts, p. 24, 20-21 October 2022, Novi Sad	https://zenodo.org/record/8246433
8	M. Petronijević, S. Panić, S. Savić, S. Petrović, N. Đurišić-Mladenović, Synthesis and characterization of magnetite-biochar composite as a potential	https://zenodo.org/record/8246433





		<u> </u>
	adsorbent for wastewater treatment, 1st TwiNSol-CECs Workshop, Advance	
	multicompound analyses and novel solutions for protection of environmental	
	resources with contaminants of emerging concern in focus, Book of Abstracts,	
	20-21 October 2022, Novi Sad	
9	I. Antić, J. Živančev, M. Buljovčić, D. Rakić, N. Đurišić-Mladenović, Is there a sharp difference between the definitions "compounds of emerging concerns" and "endocrinedisrupting compounds"? 1st TwiNSol-CECs Workshop, Advance multicompound analyses and novel solutions for protection of environmental resources with contaminants of emerging concern in focus, Book of Abstracts, 20-21 October 2022, Novi Sad	https://zenodo.org/record/8246433
10	D. Rakić, Z. Šereš, I. Antić, M. Buljovčić, J. Živančev, N. Đurišić-Mladenović,	
	Microplastics and nanoplastics in the environment and the characterization methods (In Serbian: Mikroplastika I nanoplastika u životnoj sredini i metode njihove karakterizacije), 10 th Memorial Scientific Event on the Environmental Protection "Doc. Dr. Milena Dalmacija (Memorijalni naučni skup iz zaštite životne sredine "Docent dr Milena Dalmacija"), str. 20-27, Novi Sad, 30-31.03.2023.	https://zenodo.org/records/10012932
11	J. Šurlan, N. Maravić, Z. Šereš, N. Đurišić-Mladenović, B. Pajin, D. Šoronja-	
	Simović, Removal of ibuprofen, diclofenac and carbamazepine from wastewater by nanofiltration (In Serbian: Uklanjanje ibuprofena, diklofenaka i karbamazepina iz otpadnih voda primenom nanofiltracije), 10 th Memorial Scientific Event on the Environmental Protection "Doc. Dr. Milena Dalmacija (Memorijalni naučni skup iz zaštite životne sredine "Docent dr Milena	https://zenodo.org/records/10007745
40	Dalmacija"), str. 60-66, Novi Sad, 30-31.03.2023.	
12	V. Vasić, D. Kukić, M. Šciban, N. Đurišić -Mladenović, N. Velić, B. Pajin, J. Crespo, M. Farre and Z. Šereš: Lignocellulose-Based Biosorbents for the Removal of Contaminants of Emerging Concern (CECs) from Water: A Review, Water 2023, 15, 1853.	https://zenodo.org/record/7970247
13	V. Vasić, D. Lukić, I. Antić, J. Živančev, M. Šćiban, N. Đurišić-Mladenović, D. Rakić, A. Lourenço, J. Gominho, Adsorption potential of lignin isolated from raspberry stem for removal of CECs from water, Book of Abstracts, 9 th Symposium Chemistry and Environmental Protection Envirochem2023, 59-60., Kladovo, 47.06.2023. (in Serbian: Adsorpcioni potencijal lignina izolovanog iz stabljike maline za uklanjanje emergentnih zagađujućih supstanci iz vode. Knjiga apstrakata, 9. Simpozijum Hemija i Zaštita Životne Sredine).	https://zenodo.org/record/8027533
14	D. Lukić, V. Vasić, J. Živančev, I. Antić, M. Buljovčić, N. Đurišić-Mladenović, M. Šćiban, Preliminary studies of agricultural waste as a biosorbent for the removal of chemicals of emerging concern from water, Book of Abstracts, 9th Symposium Chemistry and Environmental Protection, Envirochem 2023, 65-66., Kladovo, Serbia, 47.06.2023.(in Serbian: Preliminarna ispitivanja primene poljoprivrednog otpada kao biosorbenta za uklanjanje emergentnih zagađujućih supstanci iz vode. Knjiga apstrakata, 9. Simpozijum Hemija i Zaštita Životne Sredine)	https://zenodo.org/record/8027535
15	I. Antić, J. Živančev, D. Rakić, M. Buljovčić, N. Đurišić-Mladenović, Development of a method based on solid-phase extraction and ultra-high performance liquid chromatography coupled with mass spectrometry for simultaneous analysis of compounds of emerging concern in water matrices, Book of Abstracts, 9th Symposium Chemistry and Environmental Protection, Envirochem 2023, 65-66., Kladovo, Serbia, 47.06.2023	https://zenodo.org/record/8027512
16	M. Petronijević, S. Panić, V. Vasić, D. Kukić, I. Antić, N. Đurišić-Mladenović, Hydrochars derived from waste wood biomass as adsorbents for selected active substances of pharmaceuticals and pesticides removal from water, Book of Abstracts, 9th Symposium of Chemistry and Environmental Protection, Envirochem2023, 63-64., Kladovo, 47.06.2023.(in Serbian: Hidrougljevi dobijeni iz otpadne drvne biomase kao adsorbenti za uklanjanje aktivnih	https://zenodo.org/record/8027928





	supstanci odabranih farmaceutika i pesticida iz vode, Knjiga apstrakata, 9. Simpozijum Hemija i Zaštita Životne Sredine)	
17	J. Živančev, O. Gómez-Navarro, N. Montemurro, S. Pérez, I. Antić, M. Buljovčić, D. Rakić and N. Đurišić Mladenović, Wide-Scope Target Screening of Pharmaceuticals in the Danube River Water Samples by Ultra-Performance Liquid Chromatography Coupled with High Resolution Mass Spectrometry, Book of Abstracts, International Conference on Chemistry and the Environment – ICCE 2023, page 153, Venice, Italy – 11-15.06.2023	https://zenodo.org/record/8054846
18	N. Đurišić-Mladenović, M. Farré, J. Živančev, M. Llorca, I. Antić, M. Buljovčić and D. Rakić, Analysis of Poly- and Perfluoroalkyl Substances (PFASs) in the Danube River Water Samples from Serbia, Book of Abstracts, International Conference on Chemistry and the Environment – ICCE 2023, page 152, Venice, Italy – 11-15.06.2023	https://zenodo.org/record/8055205
19	A. Adamović, M. Petronijević, S. Panić, D. Cvetković, I. Antić, Z. Petrović, N. Đurišić-Mladenović, Biochar and hydrochar as adsorbents for the removal of contaminants of emerging concern from wastewater, Advanced Technologies: 12 (1), 2023, 57-74.	https://zenodo.org/record/8089691
20	N. Đurišić-Mladenović, J. Živančev, I. Antić, B. Pajin, N. Maravić, Z. Šereš, Horizon Europe twinning project as a way for reinforcement of capacities towards the excellence in analysis of contaminants of emerging concern – TwiNSol-CECs project, Book of Abstracts of Short Symposium "Indoor Pollutants" (Arh Hig Rada Toksikol 2023; 74:A37-A50), A48	https://zenodo.org/records/10003191
21	J. Živančev, I. Antić, M. Buljovčić, D. Rakić, N. Đurišić-Mladenović "Human and material resources for environmental contaminant analysis – scientific achievements of the Lab for Chromatographic Analysis of the Novi Sad Faculty of Technology" Book of Abstracts of Short Symposium "Indoor Pollutants" (Arh Hig Rada Toksikol 2023; 74:A37-A50), A49	https://zenodo.org/records/10021395
22	N. Đurišić-Mladenović, J. Živančev, I. Antić, Z. Šereš, B. Pajin, N. Maravić, V. Vasić, D. Lukić, M. Šćiban, S. Panić, M. Petronijević, J. Crespo, and M. Farre, Innovative approaches in monitoring and removal of contaminants of emerging concern from water, 26th Congress of SCTM Sept. 20-23, 2023, Metropol Lake Resort, Ohrid, N. Macedonia	https://zenodo.org/record/8406245
23	N. Đurišić-Mladenović, Occurrence of contaminants of emerging concern in water resources and the related analytical challenges, 26th Congress of SCTM Sept. 20-23, 2023, Metropol Lake Resort, Ohrid, N. Macedonia	https://zenodo.org/record/8370913

The first invited oral presentations on the topics of focal interest for TwiNSol-CECs were given by four TwiNSol-CECs members from TFNS at the 1st TwiNSol-CECs Workshop *Advanced multi-compound* analyses and novel solutions for the protection of environmental resources with contaminants of emerging concern in focus organized by TFNS in Novi Sad, Serbia, October 20-21, 2022.

An electronic version of the Book of Abstracts of the 1st TwiNSol-CECs Workshop *Advanced multi-compound analyses and novel solutions for the protection of environmental resources with contaminants of emerging concern in focus* (Figure 5) was published at the project website⁴ and stored in the ZENODO repository⁵. It contains 30 abstracts. The Book's catalogization data is obtained in accordance to the official procedure for Cataloguing in Publication (CIP) by the Matica Srpska Library. Several research abstracts of the invited lectures of the TFNS researchers were published by project team members within the framework of the 1st Workshop (Table 3).

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⁴ https://twinsol-cecs.com/images/documents/1st_twinsol-cecs_book_of_abstracts-20-21_oct2022.pdf

⁵ https://zenodo.org/records/8246433





Two young researchers Jelena Šurlan and Dušan Rakić, both PhD students and members of the TwiNSol-CEC team, presented the project results at the *10th Memorial scientific meeting on the environmental protection "Doc. Dr. Milena Dalmacija"*, Novi Sad, 30.-31.03. 2023 (Figure 6). Jelena Šurlan won the award for the best oral presentation. Both young researchers have published articles within Proceeding of the Conference (Table 3).



Figure 5 Book of Abstracts of the 1st TwiNSol-CECs Workshop Advanced multi-compound analyses and novel solutions for the protection of environmental resources with contaminants of emerging concern in focus, Novi Sad, Serbia, October 20-21, 2022









Figure 6 Jelena Šurlan and Dušan Rakić, two PhD students, as a members of TwiNSol-CECs project gave oral presentations at 10th Memorial scientific meeting on the environmental protection "Doc. Dr. Milena Dalmacija", Novi Sad, 30.-31.03. 2023. Jelena Šurlan was awarded for the best oral presentation

TwiNSol-CEC team members Dr. Igor Antić, Dr. Vesna Vasić, Dr. Dragana Lukić, and Dr. Mirjana Petronijević presented the ongoing project investigation at the well known national scientific event *9th Symposium "Chemistry and Environmental Protection"*, held in June in Kladovo, Serbia⁶ organized by the Serbian Chemical Society - Section for the Environmental Protection (Figure 7). Four oral presentations were given by the TwiNSol-CECs members, covering different thematic areas of interest for TwiNSol-CECs, including analysis of CECs in water matrices and evaluation of biosorption processes for CECs removal from water. Additionally, TwiNSol-CECs members were active participants of the Symposium's Scientific Bar on Per- and Polyfluoroalkyl substances – from the Challenge to the Solution, where Dr. Jelena Živančev gave short overview of the latest challenges in analytics of CECs (Figure 7).

⁶ https://envirochem.rs/











Figure 7 Details on participation of the TFNS researchers from the TwiNSol-CECs team at 9th Symposium "Chemistry and Environmental Protection, Kladovo, Serbia, 4-7.06.2023

Furthermore, project coordinator Prof. Nataša Đurišić-Mladenović and Dr. Jelena Živančev presented TwiNSol-CECs project results (Figure 8 and 9) at the prestigeous event of the European Chemical Society *International Conference on Chemistry and the Environment – ICCE 2023,* held in Venice, Italy, 11-15 June 2023⁷ (Table 3). Their two abstracts were accepted for the poster presentations with the spotlight announcement given by Prof. Đurišić-Mladenović and Dr. Jelena Živančev.

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⁷ https://icce2023.com/about/





Prof. Đurišić-Mladenović was invited to participate in the Seminar "PFAS challenge that persistently waits to be solved" organized by PFAStwin project (GA 101059534) at the Faculty of Chemistry, University of Belgrade, September 6, 2023⁸, where she gave a 45-min oral lecture entitled "TwiNSol-CECs project: Boosting the capacities for the CECs surveillance in the Western Balkans", presenting the background of the problems tackled by the TwiNSol-CECs project (Figure 10).

Prof. Đurišić-Mladenović and Dr. Jelena Živančev were invited to present the resources and achievements of the TFNS Lab for Chromatographic Analysis and the TwiNSol-CECs project at the Short Symposium "Indoor contaminants" held at the Institute for Medical Research and Occupational Health in Zagreb, September 8, 20239 (Figure 11). Two abstracts of these presentations are published in the Symposium book (Table 3) and archived in the ZENODO repositorium.





Figure 8 Spotlight presentations of the TwiNSol-CECs researchers Dr. Jelena Živančev and Prof. Nataša Đurišić-Mladenović at the International Conference on Chemistry and the Environment – ICCE 2023, Venice, Italy, 11-15.06.2023

⁸ https://www.pfastwin.org/news/pfas-challenge-that-persistently-waits-to-be

⁹ https://www.imi.hr/en/2023/12/09/10081/







Figure 9 TwiNSol-CECs researchers in front of the poster presentations and with colleagues from CSIC at the International Conference on Chemistry and the Environment – ICCE 2023, Venice, Italy, 11-15.06.2023



Figure 10 a) Invited lecture of Prof. Nataša Đurišić-Mladenović at the Seminar "PFAS challenge that persistently waits to be solved" organized by PFAStwin project (GA 101059534) at the Faculty of Chemistry, University of Belgrade, September 6, 2023





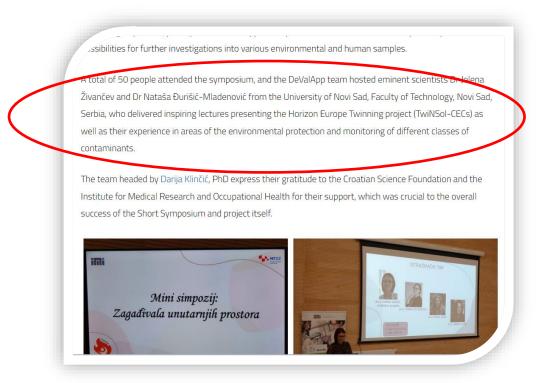


Figure 11 Detail from the website news on the TwiNSol-CECs researchers' participation the Short Symposium "Indoor contaminants" held at the Institute for Medical Research and Occupational Health in Zagreb, September 8, 2023 (https://www.imi.hr/en/2023/12/09/10081/)

Project coordinator Prof. Nataša Đurišić-Mladenović, attended the 26th Congress of SCTM with international participation, 20-23 September in Ohrid, North Macedonia (Figure 12). Prof. Đurišić-Mladenović was invited to present TwiNSol-CECs objectives and the challenges in front of the analytics for CECs surveillance. The title of the invited lecture is "Occurrence of contaminants of emerging concern in water resources and the related analytical challenges". She also gave an oral presentation on the preliminary project results obtained jointly with the colleagues from CSIC and UNL. Both abstracts are published in the Congress Book of Abstracts and archived at the ZENODO repository (Table 3).

One review paper in co-authorship with the EU partners¹⁰ (Table 3) was published in an open-access international journal $Water^{11}$ (IF 3.530 (2021), Environmental Sciences 148/279, Water Resources 36/103). It is stored in ZENODO¹².

¹⁰ Water | Free Full-Text | Lignocellulose-Based Biosorbents for the Removal of Contaminants of Emerging Concern (CECs) from Water: A Review (mdpi.com)

¹¹ https://www.mdpi.com/journal/water

¹² https://zenodo.org/record/7970247





Another review paper¹³ was published in a national journal *Advanced Technologies*, giving an overview of the application of biochar and hydrochar as adsorbents for CECs removal from water (Table 3).

All the publications contained acknowledgement to the TwiNSol-CECs project and the mandatory disclaimer:

"This study was conducted under the TwiNSol-CECs project, which received funding from a Horizon Europe program under grant agreement No. 101059867.

This research was funded by the European Union. However, the views and opinions expressed are those of the author(s) only and do not necessarily reflect those of the European Union or EU executive agency. Neither the European Union nor the granting authority can be held responsible for them."



Figure 12 Invited lecture of Prof. Đurišić-Mladenović during the 26th Congress of SCTM with International Participation, 20-23 September 2023, Ohrid, N. Macedonia

4.2. Other presentations

On October 26, 2022, Prof. Nataša Đurišić-Mladenović participated in the second day of the kick-off meeting of the CROPPINO twinning project (GA 101059784), presenting the TwiNSol-CECs in the session dedicated to synergies of the CROPPINO with other projects (Figure 13a).

Similarly, she presented the project at the event "SCIENCE MEETS NEEDS OF BIOMEDICAL SECTOR" organized within H2020 twinning project GreenElit (951747), October 30, 2023, Figure 13b.

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¹³ https://zenodo.org/record/8089691











	Presentation of the WPs – WP3	
	Stepping up excellence and innovation capacity –	
15:30 – 16:30	Work description	Dr Kerstin Nagel, FZJ
15:30 - 16:30	Deliverables and milestones	
	Guidances, roadmaps, Climate Crops Center	
	Q&A discussion	All partners
	Stakeholder Steering Group session	
16:30 – 17:00	Sequentia Biotech	Dr Riccardo Aiese Cigliano
16:50 - 17:00	CroP-BioDiv	Dr Boris Lazarević
	Center for Promotion of Science	Danijela Vučićević
19.00-22.00	Social dinner	
DAY 2	26.10.2022	
	Presentation of the WPs – WP1	
	Strengthening scientific capacity – Synergies with oth	ner projects
	TwiNSol-CECs	Dr Nataša Đurišić-Mladenev
09:00 - 09:30	Extremedim Twin	Dr Biljana Basarin
		· · · · · · · · · · · · · · · · · ·
	ClimateEurope2	Dr Petar Laušević
	ClimateEurope2 EMPHASIS/EMPHASIS-GO	Dr Petar Lausevic Dr Sven Fahrner

a)



b)

Figure 13 a) Presentation of TwiNSol-CECs was a part of the second day of the kick-off metting of the CROPPINO project (GA 101059784) b) Invited lecture of Prof. Nataša Đurišić-Mladenović at the Closing event of the H2020 Twinning project GreenElit (GA 951747), Fruške Terme, October 30, 2023





At two occassions, Prof. Đurišić-Mladenović presented online TwiNSol-CECs project to the participants of the trainings on preparation of the Horizon Europe twinning project organized by EUTA¹⁴ on 10 May June and 4 September 2023 (Figure 14).





Figure 14 Online presentations on TwiNSol-CECs to the atendees of the EUTA trainings on preparation of the Horizon Europe twinning projects held on May 10, 2023, and on September 4, 2023

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¹⁴ https://euta.info/en/about-us/#





5. Preparation and distribution of the project promotional material

Preparation of draft version of promotional materials started in August 2022, while the final version was printed before the TwiNSol-CECs Week in October. In the very beginning of this activity, common visual elements (photos, slogans, quotes, etc.) for all promotional materials, printed or electronic, were agreed, in order to make visual identity of the project itself in this way. All items contained the mandatory EU emblem with EU flag and funding statement, as well as the project logo.



Figure 15 Project official logo

The following promotional items were prepared:

- Brochure of the project, printed in 150 copies, while electronic version is available at the project website¹⁵,
- Printed posters announcing the TwiNSol-CECs Week in October (17-21 October 2022), the 1st TwiNSol-CECs Workshop (20-21 October 2022), and the 5th TwiNSol-CECs training (26-27 September 2023),
- Rollup banners (in English and bilingual (SRB-ENG) displayed during the project events),
- Notebook, printed in 150 copies,
- Pen, prepared in 150 copies,
- Sticky labels for the team members' office doors, 20 copies,
- USB, 25 copies,
- backpack, 25 copies,
- glass water bottle, 25 copies,
- Newsletter no.1, electronic version published at the project website during October¹⁶ (printing is contracted and arranged, but printed copies have not been delivered during the first reporting period).

The registered participants of the 1st TwiNSol-CECs Workshop, 20-21 October 2022, obtained a registration pack with the Workshop programme, notebook, pen, and the project brochure. At a registration desk of the Kick-off meeting, 19 Oct 2022, all participants had opportunity to take notebook, pen, and the project brochure, while CSIC and UNL team members obtained a pack with these promotional materials together with sticky labels.

The prepared promotional materials were also distributed to the participants of the 1st TwiNSol-CECs Summer School during the registration; all the School grantholders obtained the promotional package

¹⁶ https://twinsol-cecs.com/images/documents/news and events/newsletter 2023.pdf

¹⁵ https://www.twinsol-cecs.com/images/documents/brochure-01.pdf





with the Summer School program, glass water bottle, brochure of the project, pencil and notebook, and USB packed in the backpacks; all items were marked at least with obligatory visual elements for identifying the funding source, EU, and the project itself (Figures 16 and 17). The organization of the 1st Summer School was also announced by posters at the entrance of TFNS and the Blue Hall where the theoretical lessons were held (Figure 18).



Figure 16 Part of the promotional materials prepared for the registered 1st TwiNSol-CECs Summer School participants





Figure 17 Promotional material at the registration desk during the 1st TwiNSol-CECs Summer School registration of participants







Figure 18 Posters at the TFNS entrance and in front of the TFNS Blue Hall announcing the 1st TwiNSol-CECs Summer School

Furthermore, additional information regarding project promotional material can also be found in the Report 6.3^{17} .

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¹⁷ https://www.twinsol-cecs.com/images/documents/r6 3 promotional material-oct2022 final.pdf





6. Organization of the project events

The first event organized within the framework of TwiNSol-CECs project was the 1st TwiNSol-CECs Workshop entitled: *Advance multicompound analyses and novel solutions for protection of environmental resources with contaminants of emerging concern in focus,* on October 20-21st in the first project year as a 2-day event (in English) with an aim to gather scientists and experts interested in problems of CECs' environmental occurrence and relevant analytical methodologies. The Workshop was organized by TFNS in Novi Sad, Serbia (Figure 19) and served as a forum for exchange of project ideas and results in the domain of environmental protection, contributing to the harmonization of research and innovation efforts important for the sustainable transition of whole Europe, as foreseen by the European Green Deal, towards zero-pollution, i.e. toxic free environment.

Thematic areas of the Workshop were:

- analysis of environmental contaminants, including CECs;
- environmental and human health relevancy of CECs determination;
- adsorption, membrane, and catalytic-based processes for wastewater treatment;
- linking sustainable development principles and wastewater treatment processes.

The Scientific Committee of the Workshop consisted of researchers from 6 countries.

In order to disseminate the project information to the wider audince, the Workshop was organized as a parallel event to a large-scale event of 2nd International Conference on Advanced Production and Processing (ICAPP 2022) organized by TFNS in the period 20-22 October 2022. The Opening ceremony of ICAPP and the Workshop was jointly organized at the Rectorate Building of the University of Novi Sad with about 200 attendees from 16 countries. During the ceremony of the official opening, representatives of the Serbian Ministry for Education, Science and Technological Development, Vojvodina Provincial Secretariat for Higher Education and Scientific Research, authorities of the Novi Sad city, and the Rector of the University of Novi Sad were present together with scientists and representatives of various industries. The national and local media covered the opening ceremony during which Prof. Dr. Zita Šereš, Vice Dean for Science of TFNS, emphasized the importance of the TwiNSol-CECs project, as the largest project in the last ten years at TFNS.

The plenary lectures were given by two of top class researchers from the TwiNSol-CECs partner institutions:

- "Membranes in Bioprocessing", Prof. Dr. João G. Crespo from LAQV-Requimte, Department of Chemistry, FCT - NOVA University of Lisbon, and
- "The challenge of assessing contaminants of emerging concern in the environment", Prof.
 Dr.Marinella Farré from ON HEALTH research group, Institute of Environmental Assessment
 and Water Research (IDAEA-CSIC), Barcelona, Catalonia.

The Workshop included a seassion dedicated to the ongoing Twinning projects in domain of environmental research coordinated by institutions from Novi Sad and Belgrade. In total 6 TWINNING





projects were presented: ExtremeClimTwin (GA 952384), TwinSubDyn (GA 101059546), PFAStwin (GA 101059534), SmartWaterTwin (GA 101060110), CROPPINO (GA 101079772) and our project TwiNSol-CECs (GA101059867).

Besides abovementioned presentations, Workshop included series of invited (5) and oral presentations (10) of registered participants on research topics of interest for the project were given in accordance to the Workshop Programme¹⁸.

In total, Workshop gathered 58 participants from 19 institutions from 7 countries (Hungary, Spain, Portugal, UK, Croatia, Bosnia and Herzegovina, and Serbia), who signed the attendance list. Before the signing, all participants were informed that by signing the list they would also grant the permission and consent to TwiNSol-CECs team for the use of the any photograph(s) or electronic media images taken/made at the 1st TwiNSol-CECs workshop for presentation under any legal use.

During the registration, all participants were provided with the registration pack free of charge, containing the prepared project promotional material (brochure of the project, pencil, and a notebook, all with obligatory visual elements for identifying the funding source and the project itself), as well as the printed agenda of the Workshop and the questionnaire for evaluation of Workshop organization and performance.

Three Principle Scientific Boards of the Ministry of Science, Technological development and Innovation of the Republic of Serbia, i.e. Scientific Board for Chemistry, Scientific Board for Management, Protection, and Use of Water, Soil, and Air, and Scientific Board for Materials and Chemical Technologies, gave their opinions about the 1st TwiNSol-CECs Workshop, proclaiming it as an international event and assigning it a national category M30¹⁹.

All events organized by the TwiNSol-CECs team were GDPR compliant.

¹⁸ https://www.twinsol-cecs.com/images/documents/r6 4 1st twinsol-cecs_workshop-report-oct2022.pdf

¹⁹ https://twinsol-cecs.com/index.php/news-events/46-book-of-abstract











Figure 19 Details from the 1st TwiNSol-CECs Workshop





7. Communication and clustering activities – 'Club of TwiNSol-CECs interest'

At the Faculty of Technology Novi Sad, a joint meeting of different stakeholders entitled under the name "Club of TwiNSol-CECs of Interest" was held within the TwiNSolCECs project (Figure 20), with the aim of transferring information on the project results and the latest knowledge gained with the partner institutions to potential direct and indirect beneficiaries, such as representatives of water management bodies, public utility companies, industry, secondary schools, citizens, media. The 'Club' is created as a sustainable platform for academia, industry, and citizens, that goes beyond TwiNSol-CECs, strengthening the connection of TFNS to business actors and society for transforming research results into social and economic value.

This first Meeting was organized as an event for introductory presentation of TwiNSol-CECs goals and possible collaboration pathways with stakeholders, either through the session with oral presentation given by the TwiNSol-CECs members or during the afterwards discussion during the B2B coffee break. Besides TwiNSol-CECs project team members and colleagues from TFNS, 16 representatives of 11 institutions attended the Meeting of the Club as presented in published report²⁰.





Figure 20 The first meeting of 'Club of TwiNSol-CECs Interest'

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²⁰ https://www.twinsol-cecs.com/images/documents/r6 5-1st meeting club of interest-tfns-27apr2023.pdf





After the meeting TwiNSol-CECs team has sent to the participants of the first meeting of the 'Club' a questionnaire for acquiring potential inputs and interest of stakeholders in the TwiNSol-CECs research and collaboration. The questionnaire was distributed to all the attendees, who gave the consent to be included in the emailing list by signing the List of Participants of the 1st Meeting.

The Meeting was organized in compliance with the GDPR.

Another event within clustering activities with stakeholders was during the Hungarian-Serbian Water Management Forum and B2B Business Talks on 5 October 2023 in Szeged, Hungary. TwiNSol-CECs project team members Dr. Igor Antić, Dr. Jelena Živančev, and Dr. Maja Buljovičić attended this event orgnized with the support of the Embassy of Hungary in Belgrade, the Chamber of Commerce of Vojvodina, and the regional representation of Central European Network for Economic Development in Novi Sad. Project team members used this opportunity to meet the experts in water sector from Hungary, including representatives of specialized companies from Hungary in the field of drinking water and industrial water preparation, wastewater treatment, sewage network construction, and water management infrastructure in general.



Figure 21 TwiNSol-CECs project team members Dr. Igor Antić, Dr. Jelena Živančev, and Dr. Maja Buljovičić at Hungarian-Serbian Water Management Forum and B2B Business Talks, Szeged, Hungary, October 5, 2023





8. Outreach activities

8.1. Performed in the first reporting period

TwiNSol-CECs project was presented in EUChemS Newsletter no. 5²¹, March 2023, in a section on "Environmental research in European Universities and Research Institutions", published by Division of Chemistry and the Environment of the European Chemical Society.

The Educepo education fair was held on March 1 in Senta, Serbia, in the Hall of Sports, where the TwiNSol-CEC project was presented to future students with the intention of pointing out the problems and challenges that need to be identified and solved within the framework of environmental protection and raising awareness of the presence of various pollutants (Figure 22a).

Project coordinator Prof. Dr Nataša Đurišić-Mladenović has presented TwiNSol-CECs project²² to the students of TFNS within the course of Environmental Protection in Food Industry programme at TFNS, December 27, 2022, highlighting the general approach in successful answering the calls on project proposals.

During the visit to Food-forestry and Chemistry Secondary School in Sremska Mitrovica, Serbia, on April 25, 2023, Prof. Biljana Pajin presented the TwiNSol-CECs project (Figure 23).

Furthermore, the project was presented by Prof. Đurišić-Mladenović during one "Info Session" held at TFNS, June 1, 2023 (Figure 22b), to all TFNS researchers interested in more information on HE twinning project preparation and implementation (described in Deliverable 5.1).



Figure 22 Presentation of the project to the wider public: a) The Eduexpo education fair, March 1, 2023, Senta, Serbia, b) to the TFNS researchers during the "Info Session" June 01, 2023

²¹ NL5-final.pdf (euchems.eu)

²² https://www.twinsol-cecs.com/images/documents/ndm-twinsol-cecs-project-presentation-to-tfns-students.pdf







Figure 23 Presentation of the project to the pupils and teachers of the Chemistry Secondary School in Sremska Mitrovica, Serbia, April 25, 2023

The national and local media covered the opening ceremony of 1st TwiNSol-CECs Workshop during which Prof. Biljana Pajin, Dean of TFNS, emphasized the importance of the TwiNSol-CECs project for TFNS, while Prof. Joao Crespo (UNL) gave statement on the importance of synergies between research institutions and stakeholders (0:30 to 10:30 minutes of the video²³).

National and local media also covered the opening ceremony of the first meeting of "Club of TwiNSol-CECs Interest", when Prof. Biljana Pajin and Prof. Nataša Đurišić-Mladenović, together with an attendee representing large food processing company, highlighted importance of crosslinking between the research projects, industry, and policy makers²⁴ (Figure 24).

During the 1st TwiNSol-CECs Summer School, TV crew recorded the morning session of School and took the statements of Prof. Đurišić-Mladenović, Dr. Nicola Montemurro, the visiting researcher from CSIC, and the lecturer during the School, and Dr. Jelena Živančev; the recorded material was used to prepare the video available at YouTube channel of the project and TFNS²⁵.

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²³https://media.rtv.rs/rom/rromologija/78469?fbclid=IwAR3a1leiLtQ_4nR46xGJ5RfvNoDN6ARoWFMjVVh1VonhGpTi-HfoPBLE5kE

²⁴ https://www.rtv.rs/sr_ci/vojvodina/novi-sad/da-li-se-nazire-kraj-zagadjenju-zivotne-sredine 1440244.html

²⁵ https://www.youtube.com/watch?v=IIIcXITgZIA&t=159s







Figure 24 Prof. Biljana Pajin interview for a national media prior the first meeting of the "Club of TwiNSol-CECs interest"

8.2. Outreach activities under the preparation

Participation of the TwiNSol-CECs project coordinator and the communication coordinator in a public tribune in the organization of Science Club Novi Sad is expected to be in December 2023. The tribune entitled *Soare with scientists - our habits and the environment* will be organized together with representatives of two ongoing twinning projects coordinated by the Faculty of Science in Novi Sad, TwinSubDyn (101059546, 2022-2025), SmartWaterTwin (101060110, 2022-2025). The proposal of the event was submitted to the Science Club at the beggining of 2023 and upon receving the approval just recently, the preparation of the TwiNSol-CECs contribution has started.

Negotiation with secondary schools in Novi Sad for visits to TFNS for the presentations on the environmental pollution and problems induced by CECs and tackled by TwiNSol-CECs has been underway.

Following the acceptance of PST, a series of short texts on various issues of importance for TwiNSol-CECs are preparing for publication through the LinkedIn project account. These concise texts aim to capture the attention of both the general public and stakeholders, shedding light on critical aspects of our project, including topics such as CECs, membrane processes, biosorbents, and the impact of European projects on the Serbian higher education and research institutions. By presenting these intricate subjects in an accessible manner, the intention is to engage a broader readership. Each publication will be authored by a project member, providing an opportunity to showcase individual expertise and project roles, with a particular emphasis on the TFNS researchers.