1. Identification

Call	Date of submission
C1	26/04/2022

1.1. Full name of the project

Sustainable Technologies to Assess and Minimize Anthropogenic Micropollutants in the Baltic Sea

95 / 250 characters

1.2. Short name of the project

BalticMicroTreat

16 / 20 characters

1.3. Programme priority

2. Water-smart societies

1.4. Programme objective

2.1 Sustainable waters

1.6. Project duration

Contracting start	22/09/2022	**Contracting end**	31/12/2022
Implementation start	01/01/2023	**Implementation end**	31/12/2025
		Duration of implementation phase (months)	36
Closure start	01/01/2026	**Closure end**	31/03/2026

1.7. Project summary

Effective wastewater treatment is the end-of-pipe step to reduce micropollutant inflow into the Baltic Sea. Over the years numerous novel technologies for wastewater management have been proposed by private companies and research institutions to tackle anthropogenic pollution in the Baltic Sea. Despite promising research results water utilities and/or infrastructure investment decision makers tend to select “most secure” and “no risk” options. Thus, most of time break-through solutions are not transferred to full scale. The challenge of the BalticMicroTreat is to facilitate the introduction and acceptance of novel, green micropollutant removal technologies from wastewater via assessment of the social environment in the water utilities, local municipalities and relevant opinion leaders, e.g., NGOs, to facilitate the technology scale-up. Within BalticMicroTreat fungal bio-flocculation, membrane technologies and polymer-type specific protein binders for micropollutant capture will be piloted and demonstrated together with novel micropollutant sampling and screening approaches throughout the whole wastewater flow in the treatment station. For the first time the technological activities and traditional demonstration will be coupled with the social design-based solution to better understand the needs and concerns of the target groups, and change their minds to more sustainable, innovative and green Baltic Sea region.

1,434 / 1,500 characters

1.8. Summary of the partnership

The consortium of BalticMicroTreat consists of 7 core partners from Latvia, Sweden and Germany and 4 associated partners from the same countries. The main activities of the partners are higher education and research in the fields of natural sciences, engineering, and social sciences. The consortium covers expertise in micropollutant assessment, collection, analysis, and water/wastewater technologies. The Lead Partner RTU has experience in project coordination, cooperation with industry and over the years several research projects have been implemented on technology development and piloting, incl. wastewater treatment. Lund University (LU) is has a strong membrane and water group working in national and international projects including development and implementation of pilots together with academic and industrial partners. Helmholtz-Zentrum Berlin (HZB) has a long-standing expertise in enzymatic on the structural biology and enhancement of plastic degrading enzymes and will now extend its portfolio towards polymer-type specific plastic binding proteins. HZB is well-connected to relevant researchers in this field, policy makers and also industrial stakeholders through public relation activities, previous projects and publications. Rīga Stradiņš University is one of the leading Baltic research universities specialising in social anthropological and ethnographic research of contemporary society, particularly in connection with applied and design-oriented solutions. . RSU will be responsible for developing an in-depth understanding of the social environment in which the technologies operate and development of social design-based solution to facilitate the uptake of the technologies. Furthermore, the Partner consortium includes one NGO (Association “Baltijas Krasti”) experienced in dissemination of project results, public awareness creation, including participation in Interreg projects, and one end-user/target-group representative - Adazi Water, that will act as both technology piloting site in Latvia and first test group in social perception studies. At the next level, members of Latvian Water and Wastewater Works Association and Sweden Water Research (SWR) and BWB will be involved. All associated partners will be directly involved in project activities – SWR will ensure piloting of the membrane technologies for micropollutant collection currently being designed at LU. Charité University Hospital will support HZB with designing novel-breakthrough technologies for polymer-type-specific protein binders. These will be further linked with membrane technologies of LU and combined with fungal bio-reactor system piloted by RTU. LWWWA will ensure active information transfer to target-groups in Latvia and other Baltic States. Latvian Institute of Aquatic Ecology (LIAE) has previous experience in sampling micropollutants from the Baltic Sea and will ensure the linkage of project consortium with the environmental issues tackled by the Baltic Sea Region.

2,993 / 3,000 characters

1.11. Project Budget Summary

Financial resources [in EUR]		Preparation costs	Planned project budget
ERDF	ERDF co-financing	0.00	1,916,222.56
	Own contribution ERDF	0.00	479,055.64
	ERDF budget	0.00	2,395,278.20
NO	NO co-financing	0.00	0.00
	Own contribution NO	0.00	0.00
	NO budget	0.00	0.00
NDICI	NDICI co-financing	0.00	0.00
	Own contribution NDICI	0.00	0.00
	NDICI budget	0.00	0.00
RU	RU co-financing	0.00	0.00
	Own contribution RU	0.00	0.00
	RU budget	0.00	0.00
TOTAL	**Total Programme co-financing**	0.00	1,916,222.56
	Total own contribution	0.00	479,055.64
	Total budget	0.00	2,395,278.20

2. Partnership

2.1. Overview: Project Partnership

2.1.1 Project Partners

No.	LP/PP	Organisation (English)	Organisation (Original)	Country	Type of partner	Legal status	Partner budget in the project	Active/inactive	
								Status	from
1	LP	Riga Technical University	Rīgas Tehniskā Universitāte	LV	Higher education and research institution	a)	480,176.30 €	Active	22/09/2022
2	PP	Latvian Institute of Aquatic Ecology	Latvijas Hidroekoloģijas institūts	LV	Higher education and research institution	a)	421,284.00 €	Active	22/09/2022
3	PP	Lund University	Lunds universitet	SE	Higher education and research institution	a)	382,395.00 €	Active	22/09/2022
4	PP	Association "Baltic Coasts"	Biedrība “Baltijas krasti”	LV	NGO	b)	300,300.00 €	Active	22/09/2022
5	PP	Rīga Stradiņš University	Rīgas Stradiņa Universitāte	LV	Higher education and research institution	a)	372,122.90 €	Active	22/09/2022
6	PP	Adazi Water	Ādažu ūdens	LV	Infrastructure and public service provider	b)	39,000.00 €	Active	22/09/2022
7	PP	Helmholtz Centre for Materials and Energy	Helmholtz-Zentrum Berlin für Materialien und Energie	DE	Higher education and research institution	a)	400,000.00 €	Active	22/09/2022

2.1.2 Associated Organisations

No.	Organisation (English)	Organisation (Original)	Country	Type of Partner
AO 1	Latvian Water and Wastewater Works Association	Biedrība “Latvijas Ūdensapgādes un kanalizācijas uzņēmumu asociācija”	LV	NGO
AO 2	Charité – Universitaetsmedizin Berlin	Charité – Universitätsmedizin Berlin	DE	Hospital and medical centre
AO 3	Sweden Water Research	Sweden Water Research AB	SE	Infrastructure and public service provider
AO 4	Berliner Wasserbetriebe	Berliner Wasserbetriebe	DE	Infrastructure and public service provider

2.2 Project Partner Details - Partner 1

LP/PP Lead Partner

Partner Status Active

Active from 22/09/2022 **Inactive from**

Partner name:

Organisation in original language Rīgas Tehniskā Universitāte

27 / 250 characters

Organisation in English Riga Technical University

25 / 250 characters

Department in original language Ūdens pētniecības un vides biotehnoloģiju laboratorija

54 / 250 characters

Department in English Water Research and Environmental Biotechnology Laboratory

57 / 250 characters

Partner location and website:

Address	Meza iela 1k1 (13 / 250 characters)	**Country**	Latvia
Postal Code	LV-1048 (7 / 250 characters)	**NUTS1 code**	Latvija
Town	Riga (4 / 250 characters)	**NUTS2 code**	Latvija
Website	https://wrebl.rtu.lv/ (21 / 100 characters)	**NUTS3 code**	Rīga

Partner ID:

Organisation ID type	Unified registration number (Vienotais reģistrācijas numurs)
Organisation ID	90000068977
VAT Number Format	LV + 11 digits
VAT Number	**N/A** ☐ LV90000068977 (13 / 50 characters)
PIC	888638147 (9 / 9 characters)

Partner type:

Legal status	a) Public	
Type of partner	Higher education and research instituti	University faculty, college, research institution, RTD facility, research cluster, etc.
Sector (NACE)	72.19 - Other research and experimental development on natural sciences and engineering	

Partner financial data:

Is your organisation entitled to recover VAT related to the EU funded project activities? No

Role of the partner organisation in this project:

Main research activities of Riga Technical University Water Research and Environmental Biotechnology laboratory (WREBL) are related to water and wastewater technologies, environmental engineering, applied microbiology, molecular biology, and renewable resource production from waste. WREBL has experience in national and international project coordination, WP and task lead, and project administration. WREBL regularly participates in industry contract work. Laboratory infrastructure (apart from office rooms) covers > 200 m2 and is suitable for research and piloting. Main relevant research equipment includes lab-scale bio-reactors, general microbiology equipment, fluorescent microplate reader, epifluorescence microscopes, TOC, HPLC and AAS analyzers. WREBL has developed pilots for liquid biofuel production from biomass; biogas production from dairy waste; several units for biological wastewater treatment, including microalgae bioreactor; and system for iron removal research.

985 / 1,000 characters

Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

○ Yes ○ No

State aid relevance

For the partner type selected, the Programme sees a medium to high risk for implementing State aid relevant activities. If the partner is of the opinion that its activities are not State aid relevant, it can ask the MA/JS for a plausibility check on the State aid relevance. Does the partner want to do this?

○ Yes ○ No

Justification why the partner's activities are not State aid relevant

Public higher education institution

35 / 3,000 characters

2.2 Project Partner Details - Partner 2

LP/PP Project Partner

Partner Status Active

Active from 22/09/2022 **Inactive from**

Partner name:

Organisation in original language Latvijas Hidroekoloģijas institūts
34 / 250 characters

Organisation in English Latvian Institute of Aquatic Ecology
36 / 250 characters

Department in original language Hidrobioloģijas laboratorija
28 / 250 characters

Department in English Hydrobiology laboratory
23 / 250 characters

Partner location and website:

Address Voleru str.4
12 / 250 characters

Postal Code LV-1007
7 / 250 characters

Town Riga
4 / 250 characters

Website https://www.lhei.lv/lv/
23 / 100 characters

Country Latvia

NUTS1 code Latvija

NUTS2 code Latvija

NUTS3 code Rīga

Partner ID:

Organisation ID type Unified registration number (Vienotais reģistrācijas numurs)

Organisation ID 90002129621

VAT Number Format LV + 11 digits

VAT Number N/A ☐ LV90002129621
13 / 50 characters

PIC 975548401
9 / 9 characters

Partner type:

Legal status a) Public

Type of partner Higher education and research instituti — University faculty, college, research institution, RTD facility, research cluster, etc.

Sector (NACE) 72.19 - Other research and experimental development on natural sciences and engineering

Partner financial data:

Is your organisation entitled to recover VAT related to the EU funded project activities? No

Role of the partner organisation in this project:

LIAE is so far the only scientific institution in Latvia studying microplastic pollution systematically. LIAE will take part in all WPs and lead GoA 1.5. LIAE in collaboration with other partners will collect material, will prepare microplastic samples and will be responsible for prepared samples analysis.
Following work will be done: first to assess how much microplastic is actually transported and released by particular waste water treatment plant (WWTP) in Latvia, – LIAE will evaluate microplastic occurrence throughout WWTP system at different wastewater treatment stages, including sludge and water outlet. Second, LIAE will evaluate microplastic amount before and after new technologies piloted by other partners with innovative methods applied, hence to evaluate efficiency of the methods.
LIAE will also take part in communication and dissemination activities.

877 / 1,000 characters

Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

○ Yes ○ No

State aid relevance

For the partner type selected, the Programme sees a medium to high risk for implementing State aid relevant activities. If the partner is of the opinion that its activities are not State aid relevant, it can ask the MA/JS for a plausibility check on the State aid relevance. Does the partner want to do this?

○ Yes ○ No

2.2 Project Partner Details - Partner 3

LP/PP	Project Partner		
Partner Status	Active		
Active from	22/09/2022	**Inactive from**	

Partner name:

Organisation in original language: Lunds universitet
17 / 250 characters

Organisation in English: Lund University
15 / 250 characters

Department in original language: Institutionen för kemiteknik
28 / 250 characters

Department in English: Department of Chemical Engineering
34 / 250 characters

Partner location and website:

Address: Paradisgatan 5c
15 / 250 characters

Postal Code: SE-221 00
9 / 250 characters

Town: Lund
4 / 250 characters

Website: www.lu.se
9 / 100 characters

Country: Sweden

NUTS1 code: Södra Sverige

NUTS2 code: Sydsverige

NUTS3 code: Skåne län

Partner ID:

Organisation ID type	Organisation number (Organisationsnummer)
Organisation ID	202100-3211
VAT Number Format	SE + 12 digits
VAT Number	N/A ☐ SE202100321101 (14 / 50 characters)
PIC	999901318 (9 / 9 characters)

Partner type:

Legal status	a) Public
Type of partner	Higher education and research instituti — University faculty, college, research institution, RTD facility, research cluster, etc.
Sector (NACE)	72.19 - Other research and experimental development on natural sciences and engineering

Partner financial data:

Is your organisation entitled to recover VAT related to the EU funded project activities? Yes

Role of the partner organisation in this project:

Optimisation of a membrane pilot for stormwater and rain water harvesting to reduce water and contamination load for wastewater treatment plants by integrating microplastic degradation and improved microplastic analysis.
Study visits and presentations/dissemination around the pilot.

284 / 1,000 characters

Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

○ Yes ○ No

State aid relevance

For the partner type selected, the Programme sees a medium to high risk for implementing State aid relevant activities. If the partner is of the opinion that its activities are not State aid relevant, it can ask the MA/JS for a plausibility check on the State aid relevance. Does the partner want to do this?

○ Yes ○ No

Justification why the partner's activities are not State aid relevant

Public higher education institution

35 / 3,000 characters

2.2 Project Partner Details - Partner 4

LP/PP	Project Partner		
Partner Status	Active		
Active from	22/09/2022	**Inactive from**	

Partner name:

Organisation in original language	Biedrība "Baltijas krasti" (26 / 250 characters)
Organisation in English	Association "Baltic Coasts" (27 / 250 characters)

Department in original language	n/a (3 / 250 characters)
Department in English	n/a (3 / 250 characters)

Partner location and website:

Address	Krisjana Barona iela 31b-19 (27 / 250 characters)	**Country**	Latvia
Postal Code	LV-1011 (7 / 250 characters)	**NUTS1 code**	Latvija
Town	Riga (4 / 250 characters)	**NUTS2 code**	Latvija
Website	http://baltijaskrasti.lv/ (25 / 100 characters)	**NUTS3 code**	Rīga

Partner ID:

Organisation ID type	Unified registration number (Vienotais reģistrācijas numurs)
Organisation ID	40008116782
VAT Number Format	LV + 11 digits
VAT Number	**N/A** ☑ (0 / 50 characters)
PIC	889218886 (9 / 9 characters)

Partner type:

Legal status	b) Private	
Type of partner	NGO	Non-governmental organisations, such as Greenpeace, WWF, etc.
Sector (NACE)	71.12 - Engineering activities and related technical consultancy	

Partner financial data:

Is your organisation entitled to recover VAT related to the EU funded project activities? No

Financial data	**Reference period**	01/01/2021 –	31/12/2021
	Staff headcount [in annual work units (AWU)]		12.0
	Employees [in AWU]		11.0
	Persons working for the organisation being subordinated to it and considered to be employees under national law [in AWU]		0.0
	Owner-managers [in AWU]		0.0
	Partners engaged in a regular activity in the organisation and benefiting from financial advantages from the organisation [in AWU]		1.0
	Annual turnover [in EUR]		366,622.00
	Annual balance sheet total [in EUR]		168,000.00
	Operating profit [in EUR]		0.00

Role of the partner organisation in this project:

The partner will be involved in WP1, WP2, WP3 – providing with project visual identity and information and dissemination deliverables within project (including social media communication, publications, information materials etc.). The partner will be leading WP3 – transferring developed solutions to target groups, organizing communication and information activities to promote benefits of the project products and technologies to rise the public awareness and bring the results of the project to the attention of practitioners and decision makers, fostering replicability and transferability.

596 / 1,000 characters

Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

○ Yes ○ No

2.2 Project Partner Details - Partner 5

LP/PP Project Partner

Partner Status Active

Active from 22/09/2022 **Inactive from**

Partner name:

Organisation in original language Rīgas Stradiņa Universitāte

28 / 250 characters

Organisation in English Rīga Stradiņš University

25 / 250 characters

Department in original language Komunikācijas fakultāte

24 / 250 characters

Department in English Faculty of Communication

25 / 250 characters

Partner location and website:

Address Dzirciema iela 16

18 / 250 characters

Postal Code LV-1007

8 / 250 characters

Town Riga

5 / 250 characters

Website www.rsu.lv

11 / 100 characters

Country Latvia

NUTS1 code Latvija

NUTS2 code Latvija

NUTS3 code Rīga

Partner ID:

Organisation ID type Unified registration number (Vienotais reģistrācijas numurs)

Organisation ID 90000013771

VAT Number Format LV + 11 digits

VAT Number **N/A** ☐ LV90000013771

13 / 50 characters

PIC 999843118

9 / 9 characters

Partner type:

Legal status	a) Public	
Type of partner	Higher education and research instituti	University faculty, college, research institution, RTD facility, research cluster, etc.
Sector (NACE)	85.42 - Tertiary education	

Partner financial data:

Is your organisation entitled to recover VAT related to the EU funded project activities? No

Role of the partner organisation in this project:

RSU team will be responsible for (1) gathering and analysing data about the social environment in which the technologies are implemented in real-life situations This will include medium-term ethnographic observations at the places of the possible deployment of the technological solutions; (2) developing, testing and implementing a solution for facilitation of the actual implementation of the developed technological solution. This process will take advantage of combining the collected data of social environment in three countries and will use the design approach (mostly social and process design with elements of user experience). RSU will participate in all WP's, working in collaboration with other colleagues

718 / 1,000 characters

Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

○ Yes ○ No

State aid relevance

For the partner type selected, the Programme sees a medium to high risk for implementing State aid relevant activities. If the partner is of the opinion that its activities are not State aid relevant, it can ask the MA/JS for a plausibility check on the State aid relevance. Does the partner want to do this?

○ Yes ○ No

2.2 Project Partner Details - Partner 6

LP/PP	Project Partner		
Partner Status	Active		
Active from	22/09/2022	**Inactive from**	

Partner name:

Organisation in original language	Ādažu ūdens (11 / 250 characters)
Organisation in English	Adazi Water (11 / 250 characters)
Department in original language	n/a (3 / 250 characters)
Department in English	n/a (3 / 250 characters)

Partner location and website:

Address	Gaujas 16 (9 / 250 characters)	**Country**	Latvia

Postal Code	LV-2164 (7 / 250 characters)	**NUTS1 code**	Latvija
Town	Adazi (5 / 250 characters)	**NUTS2 code**	Latvija
Website	http://adazuudens.lv/ (21 / 100 characters)	**NUTS3 code**	Vidzeme

Partner ID:

Organisation ID type	Unified registration number (Vienotais reģistrācijas numurs)
Organisation ID	40003929148
VAT Number Format	LV + 11 digits
VAT Number	N/A ☐ LV40003929148 (13 / 50 characters)
PIC	891933334 (9 / 9 characters)

Partner type:

Legal status	b) Private	
Type of partner	Infrastructure and public service provi	Public transport, utility company (water supply, electricity supply, sewage, gas, waste collection, airport, port, railway, etc.)
Sector (NACE)	36.00 - Water collection, treatment and supply	

Partner financial data:

Is your organisation entitled to recover VAT related to the EU funded project activities? No

Financial data

Reference period	01/01/2021 –	31/12/2021
Staff headcount [in annual work units (AWU)]		18.5
Employees [in AWU]		18.5
Persons working for the organisation being subordinated to it and considered to be employees under national law [in AWU]		0.0
Owner-managers [in AWU]		0.0
Partners engaged in a regular activity in the organisation and benefiting from financial advantages from the organisation [in AWU]		0.0
Annual turnover [in EUR]		1,337,879.00
Annual balance sheet total [in EUR]		10,496,577.00
Operating profit [in EUR]		22,792.00

Role of the partner organisation in this project:

Adazi Water (AW) is water and wastewater treatment company servicing municipalities of Adazi, Kadaga, Garkalne in Vidzeme region. WWTP operates at 2000 m3 daily inflow and currently renovations are occurring to increase the capacity for 25%. This is mostly due to increased military forces (AW is servicing NATO military base in Kadaga) and new industrial objects (food production) in the area. AW has long term cooperation with RTU and within BalticMicroTreat AW will act as piloting site for fungal bio-reactor. Main work will be related to monitoring and control of the system, participation in public awareness activities.

627 / 1,000 characters

Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

○ Yes ○ No

2.2 Project Partner Details - Partner 7

LP/PP	Project Partner
Partner Status	Active
Active from	22/09/2022
Inactive from	

Partner name:

Organisation in original language	Helmholtz-Zentrum Berlin für Materialien und Energie (52 / 250 characters)
Organisation in English	Helmholtz Centre for Materials and Energy (41 / 250 characters)
Department in original language	Makromolekulare Kristallographie (32 / 250 characters)
Department in English	Macromolecular Crystallography (30 / 250 characters)

Partner location and website:

Address	Albert-Einstein-Str. 15 (23 / 250 characters)	**Country**	Germany
Postal Code	12489 (5 / 250 characters)	**NUTS1 code**	Berlin
Town	Berlin (6 / 250 characters)	**NUTS2 code**	Berlin
Website	https://www.helmholtz-berlin.de/ (32 / 100 characters)	**NUTS3 code**	Berlin

Partner ID:

Organisation ID type	Tax (identification) number (Steuer(identifikations)nummer)
Organisation ID	136782754 (9 / 50 characters)
VAT Number Format	DE + 9 digits
VAT Number	N/A ☐ DE136782754 (11 / 50 characters)
PIC	999446000 (9 / 9 characters)

Partner type:

Legal status	a) Public	
Type of partner	Higher education and research instituti	University faculty, college, research institution, RTD facility, research cluster, etc.
Sector (NACE)	72.19 - Other research and experimental development on natural sciences and engineering	

Partner financial data:

Is your organisation entitled to recover VAT related to the EU funded project activities?	Yes

Role of the partner organisation in this project:

The Helmholtz-Zentrum Berlin (HZB) operates a large-scale scientific facility for investigating the structure and function of matter: The electron storage ring BESSY II, Germany's first third generation synchrotron light source with over 35 publicly accessible beam lines, for experiments with photons. Experimental facilities include three state-of-the-art beamlines for macromolecular X-ray crystallography (MX), X-ray microscopy Besides the beam lines, the HZB operates several core laboratory facilities. Among them is the HZB-MX BioLab, which houses a state-of-the-art infrastructure for protein production for structural biology, for protein characterization and for macromolecular crystallization. The infrastructure at HZB will thus make a strong contribution to the project in terms of structure-based enhancement of the targeted plastic-degrading and plastic-binding enzymes, as well as structural bioinformatics in WP1 and the implementation of the methods in a laboratoy pilot scale or WWTPs in WP2 and WP3, respectively.

1,034 / 1,000 characters

Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

○ Yes ◉ No

State aid relevance

For the partner type selected, the Programme sees a medium to high risk for implementing State aid relevant activities. If the partner is of the opinion that its activities are not State aid relevant, it can ask the MA/JS for a plausibility check on the State aid relevance. Does the partner want to do this?

◉ Yes ○ No

Justification why the partner's activities are not State aid relevant

Public research institution

27 / 3,000 characters

2.3 Associated Organisation Details - AO 1

Associated organisation name and type:

Organisation in original language: Biedrība “Latvijas Ūdensapgādes un kanalizācijas uzņēmumu asociācija”
69 / 250 characters

Organisation in English: Latvian Water and Wastewater Works Association
46 / 250 characters

Department in original language: n/a
3 / 250 characters

Department in English: n/a
3 / 250 characters

Legal status: a) Public

Type of associated organisation: NGO — Non-governmental organisations, such as Greenpeace, WWF, etc.

Associated organisation location and website:

Address: Lielirbes street 1
18 / 250 characters

Country: Latvia

Postal Code: LV-1046
7 / 250 characters

Town: Riga
4 / 250 characters

Website: https://www.lwwwwa.lv/
22 / 100 characters

Role of the associated organisation in this project:

LWWWWA have more than 30 years of experience and combines 47 different water and wastewater organizations, 36 members are water and wastewater utilities but 11 associated members are water sector related companies. Thus, target group problems very well known. The annual turnover of the members of association is more than 150 mill EUR.
LWWWWA confirms that all activities planned within the Project and the topic in general will generate new knowledge and offer alternative and new solutions for wastewater management.
LWWWWA will provide access to the relevant infrastructure and information (those that are not classified as trade secret) to both Project partners in case if the Project will receive funding as well as the LWWWWA will participate in the dissemination activities to ensure the increase of overall knowledge on micropollutants within the water and wastewater sector in Latvia.

895 / 1,000 characters

2.3 Associated Organisation Details - AO 2

Associated organisation name and type:

Organisation in original language: Charité – Universitätsmedizin Berlin (37 / 250 characters)

Organisation in English: Charité – Universitaetsmedizin Berlin (37 / 250 characters)

Department in original language: Insitut für medizinische Physik und Biophysik (IMPB) (52 / 250 characters)

Department in English: Institute of Medical Physics and Biophysics (IMPB) (50 / 250 characters)

Legal status: a) Public

Type of associated organisation: Hospital and medical centre — Hospital, medical centre, other health care centres and facilities, etc.

Associated organisation location and website:

Address: Charitéplatz 1 (15 / 250 characters)

Country: Germany

Postal Code: 10117 (5 / 250 characters)

Town: Berlin (6 / 250 characters)

Website: https://charite.de (18 / 100 characters)

Role of the associated organisation in this project:

The lab of Dr. Magdalena Schacherl, Institute of Medical Physics and Biophysics, Charité Berlin will support and co-work with the team of Dr. Gert Weber, HZB Berlin in order to select and produce polymer-type-specific nanobodies recognizing nano- and microplastic using an in vitro mRNA/cDNA-display system. Moreover, the Schacherl lab will facilitate biophysical characterization of plastic-nanobody complexes, as well their further modification to act as a reliable detection system for micro- and nanoplastic found in the environment (drink water, waste water). In detail, the Schacherl lab will provide their expertise, lab space and instrumentation to perform in vitro selections of plastic-binders, characterize binding kinetics of the resulting plastic-nanobody complexes using surface plasmon resonance and assist in the purification of larger amounts of protein for structural studies. Hands-on assistance will also be provided in the generation of nanobody-fusion proteins.

983 / 1,000 characters

2.3 Associated Organisation Details - AO 3

Associated organisation name and type:

Organisation in original language: Sweden Water Research AB (24 / 250 characters)

Organisation in English: Sweden Water Research (21 / 250 characters)

Department in original language: n/a (3 / 250 characters)

Department in English: n/a (3 / 250 characters)

Legal status: a) Public

Type of associated organisation: Infrastructure and public service provi — Public transport, utility company (water supply, electricity supply, sewage, gas, waste collection, airport, port, railway, etc.)

Associated organisation location and website:

Address: Ideon Science Park, Scheelevägen 15 (35 / 250 characters)

Country: Sweden

Postal Code: SE-223 70 (9 / 250 characters)

Town: Lund (4 / 250 characters)

Website: www.swedenwaterresearch.se/en/ (30 / 100 characters)

Role of the associated organisation in this project:

Sweden Water Research is a company owned and funded by water utility companies VA SYD, NSVA and Sydvatten to conduct world leading research and development in sustainable water management. Sweden Water Research is the lead manager of REWAISE project in Sweden. Membrane filtration pilot in Lund will be planned and implemented in collaboration with REWAISE-project. Sweden Water Research will have a supportive role in the whole piloting activity, with focus on WP1 (Group of activity 1.3) and WP2 (Group of activities 2.1 & 2.3). Through collaboration with Sweden Water Research and REWAISE, the membrane pilot pilot in Lund will have access not only to REWAISE lessons, but also contact with a broader network of stakeholders willbe maintained. Sweden Water Research will contribute to pilot preparations in coordination with REWAISE to acheive added value and synergy in both projects.

888 / 1,000 characters

2.3 Associated Organisation Details - AO 4

Associated organisation name and type:

Organisation in original language: Berliner Wasserbetriebe (23 / 250 characters)

Organisation in English: Berliner Wasserbetriebe (23 / 250 characters)

Department in original language: Forschung und Entwicklung (25 / 250 characters)

Department in English: Research and Development (24 / 250 characters)

Legal status: a) Public

Type of associated organisation: Infrastructure and public service provi — Public transport, utility company (water supply, electricity supply, sewage, gas, waste collection, airport, port, railway, etc.)

Associated organisation location and website:

Address: Neue Jüdenstraße 1 (18 / 250 characters)

Country: Germany

Postal Code: 10179 (6 / 250 characters)

Town: Berlin (6 / 250 characters)

Website: www.bwb.de (10 / 100 characters)

Role of the associated organisation in this project:

The project is of particular interest for BWB as a potential target group since the results would make the current costly and inaccurate detection measures obsolete and allow a rapid and sustainable assessment of microplastics pollution via labelled polymer-type-specific protein binders. Beyond that, the proposed research will give pioneering access to the detection of nanometer-sized plastic particles. BWB will have privileged access to the project results and take part in project meetings to jointly prepare the application to test real wastewater samples for microplastics and nanoplastics abundance. Lastly, for BWB, the project is a unique opportunity to communicate with WWTPs in Latvia and Sweden regarding technology transfer

738 / 1,000 characters

3. Relevance

3.1 Context and challenge

The Baltic Sea is one of the planet's largest polluted areas due to its special geographical, climatological, and oceanographic characteristics. Over the past 100 years, the ecosystem of the Baltic Sea water has been degraded dramatically due to intensive agriculture, cattle farming, forestry, the Sea traffic of pleasure craft, ferries, cargo oil, chemicals, other environmentally hazardous substances, and atmospheric wet/dry deposition. The long residence time of water coupled with sensitive marine organisms and the wide spectrum of pollutants emitted from the 85 million inhabitants in the Baltic Sea catchment put this system under high environmental pressure. The by far major source of micropollutants in the Baltic Sea originate from the source of the inadequate or total lack of municipal treatment and no or inadequate pre-treatment of industrial waste waters, which are discharged into the municipal sewage systems. Since not all of the substances can be replaced with harmless alternatives, end-of-pipe technologies (at WWTPs) are still essential. Currently, there is no perfect one-size-fits-all technology available for the removal of micro-pollutants from wastewater, however, numerous have been proposed over the years, e.g, filtration, adsorption, oxidation, biological treatment. In general, the selection of technical innovations has to be based on the effectiveness (ability to remove a broad range of micropollutants), flexibility and accessibility without disturbing the existing process and cost/benefit ratio. Though, all components are being present, mostly the novel approaches are left at a pilot level and do not end-up in being employed by the WWTPs. Thus, to succeed technologies should be complemented with appropriate social environment assessment and social design models.

1,812 / 2,000 characters

3.2 Transnational value of the project

BalticMicroTreat will join top experts in various well-known and science-intense water and wastewater treatment technologies from Latvia, Sweden and Germany, to demonstrate and explain micropollutant removal technologies to the target-groups in understandable manner. Prof. Frank Lipnizki from Department of Chemical Engineering of Lund University worked 16 years in the membrane industry and is experienced in the development of membrane applications from lab to pilot scale. Access to LU infrastructure "MemLab" - the industrial membrane process research and development centre and close cooperation with Sweden Water Research allow to ensure the technology transfer to the end-users in Sweden.
HZB is a research institute performing excellent science and developing technologies for a climate-neutral energy supply. Dr. Gert Weber from the Research Group Macromolecular Crystallography is experienced in structure-based enhancement of plastic-degrading enzymes and together with Charité Institute of Medical Physics and Biophysics will complement the consortium with top class scientific approaches on the development of innovative plastic-binding proteins.
Furthermore, the consortium will have significant input from social sciences and communication. The social sciences and design component will use knowledge about the social environment of the technological solutions in order to facilitate the actual use of the technologies in all countries of the Baltic Sea region.
The technological solution developed in Germany will be validated in a membrane pilot set up in Sweden and bioreactor piloted in Latvia to complement micro- and nanoplastic detection and removal through biotechnology. Fungal bio-flocculation technology developed by RTU will be validated in Sweden. Thus, all partners will work jointly to achieve the project aim and challenges and transfer further the technological solutions, including social design approach, to other Baltic Sea region countries.

1,984 / 2,000 characters

3.3 Target groups

Target group	Sector and geographical coverage	Its role and needs
Infrastructure and public service provid	Water and wastewater treatment utilities (whole Baltic Sea region, e.g., Adazi Water, Riga Water, Berliner Wasserbetriebe, VA Syd, NSWR) 136 / 500 characters	The target-group will obtain extensive knowledge, understanding and visual assurance about the technologies that can sustainably reduce micropollutant loads in the wastewater and thus, reduce their inflow into the Baltic Sea. The perception towards innovation will be changed by more specifically targeting the decision-makers of the target-group, first via social environment assessment and subsequent design of conditions favorable for the technology transfer. The BalticMicroTreat contact person at Berliner Wasserbetriebe is the head of the research and development department, mirroring the WWTP operators strong interest in the technologies deployed by BalticMicroTreat 677 / 1,000 characters
Local public authority	Municipalities of the Baltic Sea region, e.g.,Adazi municipality (Latvia),Lund municipality (Sweden), Malmö (Sweden) 117 / 500 characters	Local, regional, and national decision makers are responsible for planning, regulating, and monitoring the treatment of waste waters that enter WWTPs, treated wastewater discharge and overall environmental planning of the region. On certain occasions this target-group makes infrastructure development decisions and confirm the need for introduction of new technologies. 371 / 1,000 characters
NGO	Opinion leaders, decision influencers (Latvian Water and Wastewater Works Association, Sweden Water Research, VA Teknik Södra, DRICKS, Alles im Fluss) 150 / 500 characters	These target groups usually do not make official decisions about introduction of any infrastructure changes, however, they might influence the target-groups by providing assessment, analysis and expert opinions. Good knowledge, non-biased opinion is essential for NGOs. Furthermore, these groups are the first to distribute information among other target groups – infrastructure providers and local authorities. HZB will keep close contact to the Berlin-based NGO 'Alles im Fluss' who are very committed to create public awareness for clean water. This represents an ideal platform to disseminate BalticMicroTreat results locally, together with BWB. 650 / 1,000 characters

3.4 Project objective

Your project objective should contribute to:

Sustainable waters

The general objective of the project is to improve the state of Baltic Sea by assessing reducing micropollutant inflows via wastewater discharges.

Over the years in the Baltic Sea region numerous novel technologies for wastewater management have been proposed by private companies and research institutions to tackle nutrient recovery, sludge reuse, pollution reduction etc. Despite promising research results or available commercial information, WWTPs and/or relevant local authorities tend to select “most secure” and “no risk” options. Thus, most of time break-through solutions do not get to full scale operation.The specific challenge of the BalticMicroTreat is to facilitate the introduction and acceptance of novel, green micropollutant removal technologies via:
1) Identifying the potential hazard risks, current attitude and behavior of the target-groups (water utilities and local municipalities) regarding novel technologies
2) Piloting of selected technologies for micropollutant removal prior wastewater inflow into WWTP, during the treatment and before discharge.
3) Improvement of micro- and nanoplastcs detection in aqueous solutions for a better monitoring of WWTP capacities and other treatment methods developed in BalticMicroTreat
4) Changing the behavior of the target-groups via social-design based solutions and communication activities.
5) Demonstrating and discussing of the project outcomes and achievements within the target groups of partner countries and beyond.

Importantly, all the technological solutions need to exist in a social environment where people either use or not the proposed solutions therefore the project combines both technological and social solutions to the problem.

1,722 / 2,000 characters

3.5 Project's contribution to the EU Strategy for the Baltic Sea Region

Please indicate whether your project contributes to the implementation of the Action Plan of the EU Strategy for the Baltic Sea Region (EUSBSR).

(•) Yes ( ) No

Please select which Policy Area of the EUSBSR your project contributes to most.

PA Hazards

Please list the action of this Policy Area that your project contributes to and explain how.

Pa Hazards focuses on reducing the use and impact of hazardous substances. Generally, microplastic mitigation policies include prevention, replacement, and removal. The best practices and efforts often rely on the first two points, however, while those are still on their way to fully contribute to the environment, end-of pipe solutions, with extensive effort in improved and science-innovative solutions is highly necessary. BalticMicroTreat project will focus on the development of innovative and green technologies for end-of-pipe micropollutant capturing jointly with social design to tackle the target group perception and facilitate the willingness of the end-users to introduce improved municipal and industrial wastewater treatment. As a result of BalticMicroTreat project micropollutant loads in the Baltic Sea will be reduced and infrastructure and service providers, and responsible authorities will be more open to innovation.

940 / 1,500 characters

If applicable, please describe which other Policy Areas of the EUSBSR your project contributes to and how.

BalticMicroTreat will in addition contribute to:
1) PA Nutri, since it is expected that the technologies will also aid towards reduction of nutrients (less N, P in the environment due to the capture on fungal bio-flocculation), membrane technologies will also aid into reduction of other suspended organic materials. Furthermore, willingness to install the technologies by end-users will open the door for other technologies.
2) PA Innovation by demonstrating the potential and capacity of innovative solutions. Importantly BalticMicroTreat is unique since it combines engineering innovation with social studies to not only offer but also understand the needs and hurdles of the end-users.

694 / 1,500 characters

3.6 Other political and strategic background of the project

Strategic documents

The upcoming review of the Urban Waste Water Treatment Directive 91/271/EEC will, in synergy with the evaluation of the Sewage Sludge Directive 86/278/EEC, help to increase the motivation to remove micropollutants, incl. microplastics, from the wastewater and make treated water and sludge ready for reuse, supporting more circular, less polluting farming. Efficiency of capturing and removing microplastics will also be assessed.

432 / 500 characters

The most important regulatory tool for microplastics in marine environment of the Baltic Sea region is the Helsinki Convention (HELCOM) Regional Action Plan on Marine Litter containing concrete regional actions and voluntary national actions to reduce the input and presence of marine litter in the Baltic Sea.

311 / 500 characters

BalticMicroTreat directly relates to the aims of EU Green Deal by promoting innovative low-carbon technologies and toxic-free environment via safe and sustainable design. Lastly, BalticMicroTreat contributes to fresh air, clean water, healthy soil and biodiversity as one of the Green Deals Main objectives.

308 / 500 characters

3.7 Seed money support

Please indicate whether your project is based on a seed money project implemented in the Interreg Baltic Sea Region Programme 2014-2020.

( ) Yes (•) No

3.8 Other projects: use of results and planned cooperation

Full name of the project	Funding Source	Use of the project outcomes and/or planned cooperation
Initiatives to remove microplastics before they enter the sea – FanpLESStic-sea 79 / 200 characters	Interreg BSR 2014-2020 22 / 200 characters	Our proposal is using explicitly the lessons learned in the FanpLESStic-sea regarding the pathways of microplastic pollution, data collection and stakeholder involvement. In our proposal wastewater treatment is tackled more precisely, on the next level, based on the obtained knowledge of the FanpLESStic-sea. 310 / 1,000 characters
Resilient Water Innovation for Smart Economy – REWAISE 54 / 200 characters	EU H2020 8 / 200 characters	The research conducted in REWASISE by Lund University and Sweden Water Research in relation to micropollutant concentration from rain and stormwater streams with membranes, will be transferred to the BalticMicroTreat to further assess the concentrated material, process efficiency, and validate the system in full scale. 322 / 1,000 characters
Better efficiency for industrial sewage treatment - BEST 57 / 200 characters	Interreg BSR 2014-2020 23 / 200 characters	Within BEST, the consortium assessed information regarding industrial effluents, provided technologies for industrial wastewater treatment. Experience from these outputs will be assessed to skip any possible bottle-necks in wastewater treatment technologies. Furthermore, contacts available from BEST will be used to tackle the end-users in regions out of BalticMicroTreat consortium. 385 / 1,000 characters
LESS is MORE - Energy-efficient technologies for removal of pharmaceuticals and other contaminants of emerging concern 119 / 200 characters	Interreg South Baltic 2018 - 2021 34 / 200 characters	The Project pilot -demonstrated, tested and validated new technological solutions for removing pharmaceuticals and other contaminants of emerging concern as well as antibiotic-resistant bacteria that are suitable for small and middle sized WWTPs and to disseminate information on new technologies to the end-users. Within BalticMicroTreat we will use this experience and technological basis to offer any alternatives and include potential upgrades. 449 / 1,000 characters

3.10 Horizontal principles

Horizontal principles	Projects's direct impact
Sustainable development	positive
Non-discrimination including accessibility	neutral
Equality between men and women	neutral

4. Management

Allocated budget 0%

4.1 Project management

☑ **Please confirm that the lead partner and all project partners will comply with the rules for the project management as described in the Programme Manual.**

If relevant, please indicate any other important aspects of the project management, e.g. external entity supporting the lead partner in the management of the project, advisory board, steering committee, any other relevant working groups, etc.

A Project Steering Group (PSG) will plan and monitor project implementation and ensure the quality. PSG will be chaired by the project manager of Lead partner (RTU) and will consist of one representative from each partner. PSG will meet each 6-months during the project time. Once per year at least one representative from Associated partners and at least 3 independent target group representatives will be invited to form an Advisory Board meeting to follow up project activities and outcomes.

497 / 500 characters

4.2 Project financial management

☑ **Please confirm that the lead partner and all project partners will comply with the rules for the financial management and control as described in the Programme Manual.**

If relevant, please indicate any other important aspects of the financial management, e.g. external entity supporting the lead partner, positions planned for financial management, involvement of special financial experts (e.g. for public procurement), etc.

Within the Lead partner the team consisting of the project manager and the financial manager will manage the project finances, reporting and payments. In addition, each partner nominates a financial manager in their organization. The Lead Partner has its own legal department, and it can use the legal services of the city in any questions related to e.g. public procurement. Therefore, external legal or financial experts will not be involved.

444 / 500 characters

4.3 Input to Programme communication

☑ **Please confirm that you are aware of the obligatory inputs to Programme communication that must be submitted along the pre-defined progress reports, as described in the Programme Manual.**

If relevant, please describe other important aspects of project communication that you plan to introduce, e.g. a communication plan, opening and closing events, social media channel(s) etc.

Other communication channels will include Facebook Twitter, ResearchGate and LinkedIn posts in project Partner profiles, production of a documentary about the technologies developed in the Project, organization of training workshops for end-users and target groups and publication of scientific publications to distribute the results among other stakeholders.

359 / 500 characters

4.4 Cooperation criteria

Please select the cooperation criteria that apply to your project. In your project you need to apply at least three cooperation criteria. Joint development and joint implementation are the obligatory ones you need to fulfill in your project.

Cooperation criteria	
Joint Development	☑
Joint Implementation	☑
Joint Staffing	☑
Joint Financing	☐

5. Work Plan

Number	Work Package Name
1	WP1 Preparing solutions

Number	Group of Activity Name
1.1	Fungal bio-flocculation technology
1.2	Polymer-type-specific protein binders for micropollutant capture and rapid pollution assessment
1.3	Membrane technologies
1.4	Social environment studies
1.5	Pilot site assessment

Number	Work Package Name
2	WP2 Piloting and evaluating solutions

Number	Group of Activity Name
2.1	Green sustainable pilot system for micropollutant removal from wastewater
2.2	Development of design-based solution to facilitate implementation of the developed technologies

Number	Work Package Name
3	WP3 Transferring solutions

Number	Group of Activity Name
3.1	Stakeholder engagement
3.2	Transferring project outcomes to the general public and scientific community
3.3	Implementation of the design-based solution in the municipalities

Work plan overview

Period:	1	2	3	4	5	6	Leader
WP.1: WP1 Preparing solutions							**PP7**
A.1.1: Fungal bio-flocculation technology							PP1
D.1.1: Optimized fungal bio-flocculation technology		D					
A.1.2: Polymer-type-specific protein binders for micropollutant capture and rapid pollution assessment							PP7
D.1.2: Plastic-binding proteins for micro- and nanoplastic detection and removal		D					
A.1.3: Membrane technologies							PP3
D.1.3: Optimal membrane and process conditions		D					
A.1.4: Social environment studies							PP5
D.1.4: Analysis of social environment based on three field-reports		D					
A.1.5: Pilot site assessment							PP2
D.1.5: Data, efficiency assessment		D					
WP.2: WP2 Piloting and evaluating solutions							**PP3**
A.2.1: Green sustainable pilot system for micropollutant removal from wastewater							PP3
O.2.1: Green technologies for micropollutant removal from wastewater streams					O		
A.2.2: Development of design-based solution to facilitate implementation of the developed technologies							PP5
O.2.2: Social-design based solution to facilitate the uptake of the micropollutant removal technologies					O	O	
WP.3: WP3 Transferring solutions							**PP4**
A.3.1: Stakeholder engagement							PP4
O.3.1: BalticMicroTreat factsheet: micropollutant removal at various stages of WWTP					O		
A.3.2: Transferring project outcomes to the general public and scientific community							PP4
D.3.2: Transferring activities of BalticMicroTreat						D	
A.3.3: Implementation of the design-based solution in the municipalities							PP5
D.3.3: Practical deployment of the design solution in one of the partner municiplaities					D		

Outputs and deliverables overview

Code	Title	Description	Contribution to the output	Output/ deliverable contains an investment
D 1.1	Optimized fungal bio-flocculation technology	One fungal species selected for pilot reactor. Compendium of experimental data on bio-flocculation of various microplastic types, concentrations and enzymatic activity of fungi when incubated in wastewater.	O2.1. Green technologies for micropollutant removal from wastewater streams	
D 1.2	Plastic-binding proteins for micro- and nanoplastic detection and removal	Polymer-specific plastic-binders against at least two polymer types (PET and Nylon) will be developed and deployed to partners. Functionality will be validated by kinetic analyses.	O2.1. Green technologies for micropollutant removal from wastewater streams	
D 1.3	Optimal membrane and process conditions	The lab scale trails will define the optimal process conditions for water purification with integrated micro-/nanoplastic degradation	O2.1. Green technologies for micropollutant removal from wastewater streams	
D 1.4	Analysis of social environment based on three field-reports	The analysis will provide answers to the question of what are the most important social aspects in the three studied municipalities in Sweden, Germany and Latvia. It will address the questions of how people in the studied municipalities engage with both wastewater generation and implementation of technologies of treatment of the watewater	O2.2Social-design based solution to facilitate the uptake of the micropollutant removal technologies	
D 1.5	Data, efficiency assessment	Database gained will contain information on microplastic pollution degree, concentration, particles shape, size, polymer type. Efficiency assessment will provide information on % how much microplastic pollution of particular size group is decreased by different treatment methods at WWTP and what is total decrease at the outlet compared to inlet, I.e. we will be able to assess how efficient each WWTP is as to microplastic removal.	O 3.1 BalticMicroTreat factsheet: micropollutant removal at various stages of WWTP	
O 2.1	Green technologies for micropollutant removal from wastewater streams	Joint work of RTU, LU, HZB, LHEI, SWR, AW, BWB, Charite will result in development of a green pilot system for micropollutant removal. To ensure the acceptance of target-groups various technologies will be prepared, tested and adjusted to provide maximum information for the end-user, including technical data, economic assessment and sustainability. Furthermore, this output will be joined with O2.2. to approach target groups and disseminate among the decision makers. The output will contain a compendium of technical data, process flows and visual information related to the developed solutions.		
O 2.2	Social-design based solution to facilitate the uptake of the micropollutant removal technologies	The output will consist of documentation of a tested social design solution the aim of which will be to facilitate the uptake of the micropollutant removal technologies. This design solution will be also delivered as an in-situ implementation in at least one of the partner localities. The form and content of that solution will be adjusted to the findings from WP1 and therefore cannot be outlined here in more detail, but will most likely contain modified social processes and in some cases – structural solutions in the environment that support these social processes. The documentation will describe the social design solution in detail and will be usable elsewhere.		
O 3.1	BalticMicroTreat factsheet: micropollutant removal at various stages of WWTP	The output will comprise illustrative, digital and practical information about the activities of the BalticMicroTreat, including micropollutant roadmap within WWTP, expert visits and demonstration events.		
D 3.2	Transferring activities of BalticMicroTreat	Report on activities performed to transfer the activities of BalticMicroTreat to general public and scientific community.	O 3.1 BalticMicroTreat factsheet: micropollutant removal at various stages of WWTP	
D 3.3	Practical deployment of the design solution in one of the partner municiplaities	This will be in-situ application of the solutions developed during WP2 along with the documentation of this solution ready to be implemented elsewhere	O2.2Social-design based solution to facilitate the uptake of the micropollutant removal technologies	

Work package 1

5.1 WP1 Preparing solutions

5.2 Aim of the work package

The aim of this work package is to prepare solutions to help address the identified challenge. You can either develop entirely new solutions or adapt existing solutions to the needs of your target groups. Prepare your solutions in a way that you can pilot them in Work Package 2. Consider how you involve your target groups in preparation of the solutions.
Organise your activities in up to five groups of activities to present the actions you plan to implement. Describe the deliverables and outputs as well as present the timeline.

5.3 Work package leader

Work package leader 1 PP 7 - Helmholtz Centre for Materials and Energy

Work package leader 2 PP 1 - Riga Technical University

5.4 Work package budget

Work package budget 35%

5.5 Target groups

	Target group	How do you plan to reach out to and engage the target group?
1	Infrastructure and public service provider Water and wastewater treatment utilities (whole Baltic Sea region, e.g., Adazi Water, Riga Water, Berliner Wasserbetriebe, VA Syd, NSWR) 136 / 500 characters	During the development of the solutions Adazi Water (LV), Berliner Wasserbetriebe (DE) and Sweden Water Research (SWE) will participate in dissemination activities, provide test material and give access to the infrastructure to collect samples, perform social environment assessment and support with technical information. 323 / 1,000 characters
2	Local public authority Municipalities of the Baltic Sea region, e.g.,Adazi municipality (Latvia),Lund municipality (Sweden), Malmö (Sweden) 117 / 500 characters	Local public authorities will be invited to share their knowledge on implementation possibilities, impact the decision makers. This will be achieved via activities implemented in WP3 overlapping with WP1. 205 / 1,000 characters
3	NGO Opinion leaders, decision influencers (Latvian Water and Wastewater Works Association, Sweden Water Research, VA Teknik Södra, DRICKS, Alles im Fluss) 150 / 500 characters	During the period of preparation NGOs will share the information about project, planned events and activities. Furthermore, it is expected that regular information exchange between NGOs and project consortium will occur to reach more representatives from the target groups than planned. 287 / 1,000 characters

5.6 Activities, deliverables, outputs and timeline

No.	Name
1.1	**Fungal bio-flocculation technology**
1.2	**Polymer-type-specific protein binders for micropollutant capture and rapid pollution assessment**
1.3	**Membrane technologies**
1.4	**Social environment studies**
1.5	**Pilot site assessment**

WP 1 Group of activities 1.1

5.6.1 Group of activities leader

Group of activities leader PP 1 - Riga Technical University

A 1.1

5.6.2 Title of the group of activities

Fungal bio-flocculation technology

34 / 100 characters

5.6.3 Description of the group of activities

Within this task a green bio-based technology for micropollutant removal with filamentous fungi will be designed.
To remove micropollutants, especially, microplastics, chemical, biological, and physical methods are typically considered. Biological methods are generally more favourable due to their simplicity and safety for large-scale use, low operating costs, applicability in different environments, flexibility to handle a wide range of wastewater characteristics and flows. Despite their promising features, difficulties to analyse the products in a large scale, lack of reproducibility or finding a suitable microbial community have been identified as main obstacles. When dealing with degradation of various microplastic forms, bacteria and fungi, primarily ascomycetes, followed by basidiomycetes and zigomycetes, were found able to degrade petroleum-based plastics. Furthermore, white rot fungi have been described for their biochemical ability to degrade sulfonamide antibiotics and important categories of toxic, organic xenobiotics such as polycyclic aromatic hydrocarbons (PAH), 1,1,1-trichloro-2,2-bis(4-chlorophenyl) ethane (DDT), synthetic textile dyes, polychlorinated biphenyls (PCB), pentachlorophenols (PCP), and trinitrotoluene (TNT).

Unfortunately, the bio-degradation process is slow. The marine fungus Zalerion maritimum exposed to PE microplastics caused mass loss of 56.7 ± 2.9% of the plastic, corresponding to 43% of removal after 2 weeks of exposure (https://doi.org/10.1016/j.scitotenv.2017.02.017). After 30 days Aspergillus niger produced 23.11 % weight loss (%WL) of the polythylene (DOI: 10.36953/ECJ.2013.14310). Often, the degradation products need to be taken care of in addition. In BalticMicroTreat, RTU will use filamentous fungi in a completely new aspect – for bio-flocculation of microplastics. So far, the approach has been validated in collection of both viable and non-viable microalgal cells (microsize) and showed 99% reduction within 24 hours (publication submitted). During this process fungal mycelium forms flocks that collect dispersed particles. Afterwards, the flocs can be collected by simple sedimentation. Within WP1 Task 1.1. RTU will select the most appropriate fungal species and perform a set of laboratory scale tests to estimate the bio-flocculation efficiency and operational parameters in artificial and natural wastewaters that will be provided by project partner AW. To be able to transfer the technology to full scale, the technology will be limited to max 72 h incubation, suitability to variable wastewater content and additional tests to control biodegradation processes (presence of degrading enzymes, e.g., proteases, lipases, laccase or manganese peroxidase). Assessment of any potential compounds formed during the bio-degrdadation process will be evaluated together with LIAE.

2,856 / 3,000 characters

5.6.4 This group of activities leads to the development of a deliverable ✔

D 1.1

Title of the deliverable

Optimized fungal bio-flocculation technology

44 / 100 characters

Description of the deliverable

One fungal species selected for pilot reactor. Compendium of experimental data on bio-flocculation of various microplastic types, concentrations and enzymatic activity of fungi when incubated in wastewater.

207 / 2,000 characters

Which output does this deliverable contribute to?

O2.1. Green technologies for micropollutant removal from wastewater streams

75 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.1: WP1 Preparing solutions						
A.1.1: Fungal bio-flocculation technology						
D.1.1: Optimized fungal bio-flocculation technology						

5.6.7 This deliverable/output contains productive or infrastructure investment ☐

WP 1 Group of activities 1.2

5.6.1 Group of activities leader

Group of activities leader PP 7 - Helmholtz Centre for Materials and Energy

A 1.2

5.6.2 Title of the group of activities

Polymer-type-specific protein binders for micropollutant capture and rapid pollution assessment

95 / 100 characters

5.6.3 Description of the group of activities

Within Task 1.2, novel polymer-type-specific protein binders will be developed via mRNA/cDNA display and structure-guided enhancement of affinity. These binders will serve as molecular sieves (filters) for microplastic and nanoplastic particles from solutions and also pave the way towards a unique detection method for micro- and nanoplastic particles in solutions, replacing costly and inaccurate methods currently used. Supported by associated partner Charité, HCB will initially generate a combinatorial Nanobody-DNA library with a novel design allowing the generation of high sequence variability similar to that of a natural selection in vivo, however, using a more streamlined and cost-effective work flow and avoiding animal use. This has proven successful in a wide variety of biotechnological and medical applications. It is planned to use conventional antibody-like proteins (e.g. nanobodies) as scaffolds, but also to optimize already known 'plastic binders' (such as the PET-degrading enzyme PETase) by mRNA/cDNA display. This entails a full kinetic and structural characterization of binder-target complexes and their improvement based on structural data. Initially, polymer types related to textile abrasion (PET, Nylon) predominantly found in wastewater will be targeted, followed by the prevalent polyethylene and polypropylene regarding the synthesis rates. The obtained fully characterized binders will be fused to fluorescent proteins to establish a detection assay for micro- and nanoplastic particles in solutions via flow cytometry, a method that is ideal to characterize fluorescently labelled cells or microparticles with respect to their quantities and size. Secondly, polymer binders will be fused to suitable tags conferring an affinity to scaffolds to act as molecular sieves for microplastic particles, respectively.

1,849 / 3,000 characters

5.6.4 This group of activities leads to the development of a deliverable ✔

D 1.2

Title of the deliverable

Plastic-binding proteins for micro- and nanoplastic detection and removal

73 / 100 characters

Description of the deliverable

Polymer-specific plastic-binders against at least two polymer types (PET and Nylon) will be developed and deployed to partners. Functionality will be validated by kinetic analyses.

180 / 2,000 characters

Which output does this deliverable contribute to?

O2.1. Green technologies for micropollutant removal from wastewater streams

75 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.1: WP1 Preparing solutions						
A.1.2: Polymer-type-specific protein binders for micropollutant capture and rapid pollution assessment						
D.1.2: Plastic-binding proteins for micro- and nanoplastic detection and removal						

5.6.7 This deliverable/output contains productive or infrastructure investment ☐

WP 1 Group of activities 1.3

5.6.1 Group of activities leader

Group of activities leader PP 3 - Lund University

A 1.3

5.6.2 Title of the group of activities

Membrane technologies

21 / 100 characters

5.6.3 Description of the group of activities

Storm- and rainwater is often collected in combined sewers and the resulting water streams including contaminations such as micro- and nano-plastics are directly send to wastewater treatment plants. Membrane processes, in particular microfiltration and ultrafiltration, have been identified to be suitable to remove micro- and nano-plastics from water streams. The use of direct membrane filtration (DMF) with ultrafiltration membranes for micro-plastic and micro-pollulants removal for storm- and rainwater is currently under investigation in the REsilient WAter Innovation for Smart Economy (REWAISE) project. The goal is to concentrate the micro-contaminants and produce permeate for direct non-drinking purposes such as gardening or toilet flushing. Thus reducing the contaminants and water load for the wastewater treatment plant. As part of the BalticMicroTreat project two challenges of this approach will be addressed: (1) handling of the concentrated micro- and nano-plastics directly in the tank of the DMF unit and (2) analysis of the purified permeate streams with regard to nanoplastic content. With Task 1.3 LU will select the optimal membrane and processing conditions matching with the fungi selected by RTU for the degrading of the micro- and nanoplastics directly in the tank of DMF unit. Special focus will be on the fouling and cleaning of the membranes. For the preparation test, storm- and rainswater as well as artificial wastewaters will be defined and selected with our associated partner SWR. The best membrane and optimal conditions for water purification with integrated micro-/nanoplastic degradation defined will be then transferred to the pilot unit.

1,681 / 3,000 characters

5.6.4 This group of activities leads to the development of a deliverable ☑

D 1.3

Title of the deliverable

Optimal membrane and process conditions

39 / 100 characters

Description of the deliverable

The lab scale trails will define the optimal process conditions for water purification with integrated micro-/nanoplastic degradation

136 / 2,000 characters

Which output does this deliverable contribute to?

O2.1. Green technologies for micropollutant removal from wastewater streams

75 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.1: WP1 Preparing solutions						
A.1.3: Membrane technologies						
D.1.3: Optimal membrane and process conditions						

5.6.7 This deliverable/output contains productive or infrastructure investment ☐

WP 1 Group of activities 1.4

5.6.1 Group of activities leader

Group of activities leader PP 5 - Rīga Stradiņš University

A 1.4

5.6.2 Title of the group of activities

Social environment studies

26 / 100 characters

5.6.3 Description of the group of activities

The main purpose of Task 1.4 is to collect and analyse information about the social environment in which the technologies developed within the project will be deployed. The chosen method for collecting this information has been chosen the ethnographic method which allows for a nuanced in-depth understanding of the human dimension. Moreover, the method enables uncovering “unknown unknowns”, i.e., aspects of the social environment that influence the processes under investigation but have not been recognised by the researchers as such before. Under Task 1.4 three ethnographers (one in each country, in the specific municipalities involved in the project in Sweden, Germany and Latvia) will perform a long-term fieldwork among the communities that are the target groups of the technologies, including, both, the general public and the decision-making and political groups responsible for implementing the technologies in the real-life situations. As the approach for such study is exploratory and inductive, the precise social settings are not possible to identify beforehand, but most probably will include the municipalities, boards of water treatment facilities, the facilities themselves as well as a more general public which comprises both the electorate as well as the agents of waste generation. The ethnographic method consists of interviewing, observation and participation with the aim of gaining a hands-on experience of the researched environment. The main areas of interest will be to understand how the ideas regarding the use of technologies and treatment of wastewater are generated, how (and if) they are linked with the actual, observable behaviour. The results will be analysed and compiled in order to be used in the WP2 and WP3 while developing the design-based solution of changing the social behaviour in which the technologies will be deployed.

1,872 / 3,000 characters

5.6.4 This group of activities leads to the development of a deliverable ✔

D 1.4

Title of the deliverable

Analysis of social environment based on three field-reports

59 / 100 characters

Description of the deliverable

The analysis will provide answers to the question of what are the most important social aspects in the three studied municipalities in Sweden, Germany and Latvia. It will address the questions of how people in the studied municipalities engage with both wastewater generation and implementation of technologies of treatment of the watewater

340 / 2,000 characters

Which output does this deliverable contribute to?

O2.2Social-design based solution to facilitate the uptake of the micropollutant removal technologies

100 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.1: WP1 Preparing solutions						
A.1.4: Social environment studies						
D.1.4: Analysis of social environment based on three field-reports						

5.6.7 This deliverable/output contains productive or infrastructure investment ☐

WP 1 Group of activities 1.5

5.6.1 Group of activities leader

Group of activities leader PP 2 - Latvian Institute of Aquatic Ecology

A 1.5

5.6.2 Title of the group of activities

Pilot site assessment

22 / 100 characters

5.6.3 Description of the group of activities

Within this activity LIAE will summarize existing information, collect and analyse microplastic samples from pilot site wastewater treatment plants (WWTP) in Latvia in order to assess efficiency of WWTP as to microplastic pollution removal. Samples will be taken at different treatment places throughout the WWTP starting from inlet, ending with outlet. This activity will help to gain necessary knowledge to understand what are amount of microplastic pollution WWTP is dealing with, hence efficiency of removal methods, e.g., solutions developed can be adapted. The methods applied for this activity will be discussed with consortium and target groups involved, method will be adapted according to target group needs, same as target groups will assist and take part in sampling, results will be explained in details and communicated to the target groups. The best existing practice from consortium countries as to microplastic research will be considered before activity start. Basically, after samples are collected, first test samples will be run to choose most appropriate samples treatment scheme what depends largely on sample matrix and usually consists of several reactions, e.g., dry material preparation, treatment with hydrogen peroxide, heavy liquid, enzymatic reactions and Fenton reaction. Methods applied are widely known, recognized and LIAE has developed a special laboratory and skilled staff to take care of such samples treatment and analysis work. Large particles (above 500 µm) will be analysed at LIAE, while small particles (below 500 µm) will be analysed at outsourced laboratory. Obtained practical data will complement the database with information on microplastic pollution degree, concentration, particles shape, size, polymer and will allow to access how serious environmental problem is caused and how much it depends on WWTP operation. The information will be further used in WP2 to adjust pilot operating parameters and complement data obtained in WP1 tasks 1.1, 1.2., 1.3. Hence, weak and strong treatment points of WWTP will be identified.

2,075 / 3,000 characters

5.6.4 This group of activities leads to the development of a deliverable ✔

D 1.5

Title of the deliverable

Data, efficiency assessment

27 / 100 characters

Description of the deliverable

Database gained will contain information on microplastic pollution degree, concentration, particles shape, size, polymer type. Efficiency assessment will provide information on % how much microplastic pollution of particular size group is decreased by different treatment methods at WWTP and what is total decrease at the outlet compared to inlet, I.e. we will be able to assess how efficient each WWTP is as to microplastic removal.

433 / 2,000 characters

Which output does this deliverable contribute to?

O 3.1 BalticMicroTreat factsheet: micropollutant removal at various stages of WWTP

82 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.1: WP1 Preparing solutions						
A.1.5: Pilot site assessment						
D.1.5: Data, efficiency assessment						

5.6.7 This deliverable/output contains productive or infrastructure investment ☐

Work package 2

5.1 WP2 Piloting and evaluating solutions

5.2 Aim of the work package

The aim of this work package is to pilot, evaluate and adjust solutions. Plan one or several pilots to validate the usefulness of the solutions prepared in Work Package 1. Start Work Package 2 early enough to have time to pilot, evaluate and adjust solutions, together with your target groups. By the end of this work package implementation the solutions should be ready to be transferred to your target groups in Work Package 3.
The piloted and adjusted solution should be presented in one project output.
Organise your activities in up to five groups of activities. Describe the deliverables and outputs as well as present the timeline.

5.3 Work package leader

Work package leader 1 PP 3 - Lund University

Work package leader 2 PP 1 - Riga Technical University

5.4 Work package budget

Work package budget 35%

5.4.1 Number of pilots

Number of pilots 1

5.5 Target groups

	Target group	How do you plan to reach out to and engage the target group?
1	Infrastructure and public service provider Water and wastewater treatment utilities (whole Baltic Sea region, e.g., Adazi Water, Riga Water, Berliner Wasserbetriebe, VA Syd, NSWR) 136 / 500 characters	Infrastructure providers will be directly involved, since they will either host the piloting of the solutions, participate in the demonstration activities, or will share their expertise for better full scale transfer successes and bottlenecks. All involved stakeholders will participate in social environment studies, provide necessary data and inputs into creation of a social-design based solution 399 / 1,000 characters
2	Local public authority Municipalities of the Baltic Sea region, e.g.,Adazi municipality (Latvia),Lund municipality (Sweden), Malmö (Sweden) 117 / 500 characters	Municipalities will be directly approached and invited to all public seminars, workshops and demonstration events. These will include representatives from infrastructure development and environmental departments together with the top management. 245 / 1,000 characters
3	NGO Opinion leaders, decision influencers (Latvian Water and Wastewater Works Association, Sweden Water Research, VA Teknik Södra, DRICKS, Alles im Fluss) 150 / 500 characters	NGOs comprising associations will act as opinion leaders and transfer tools of the BalticMicroTreat. Their active engagement in various stakeholder groups, contact list, experience from participation in other science-based technology transfer projects will be of high importance in the organization of workshops, seminars and expert visits to the piloting site. It is expected that by the support of NGOs BalticMicroTreat outcomes will be integrated in various local and regional strategies for environmental sustainability, wastewater management, Baltic Sea revitalisation etc. 578 / 1,000 characters

5.6 Activities, deliverables, outputs and timeline

No.	Name
2.1	**Green sustainable pilot system for micropollutant removal from wastewater**
2.2	**Development of design-based solution to facilitate implementation of the developed technologies**

WP 2 Group of activities 2.1

5.6.1 Group of activities leader

Group of activities leader PP 3 - Lund University

A 2.1

5.6.2 Title of the group of activities

Green sustainable pilot system for micropollutant removal from wastewater

73 / 100 characters

5.6.3 Description of the group of activities

Within this activity 3 technological solutions will be evaluated for their piloting capacity.
RTU will pilot a fungal bioreactor for micropollutant bio-flocculation at AW. The system (max 60 L working volume) will be attached in parallel to the main wastewater stream and updated with automated controller to adjust work-conditions (mixing time, sedimentation etc defined under task 1.1.). Pilot will be run at AW for at least 6 months and regularly evaluated for its performance. Economic, energetic and engineering estimations will be modelled to demonstrate the sustainability of the technology. In case of additional biodegradation by fungi, the fungal technology will be coupled with DMF unit designed and piloted in Sweden.
For the piloting of a molecular micro- and nanoplastic filter in the laboratory scale with wastewater samples obtained from BWB or AW, tagged polymer binders directed against PET or different Nylon types will be attached to a suitable scaffold (e.g. chitin) via fusion tags. These filters will be employed for retaining nano- and microplastic particles initially from calibrated solutions (i.e. a buffer with a known microparticle content) and later on from wastewater samples provided by BWB or AW. For the development of a rapid and reliable micro- and nanoplastic detection system, PET and nylon particles will be used, however, the assay can be extended to further polymer types beyond the project phase. Determination of particle size down to the double-digit nanometer range and particle number would be possible in the laboratory using a flow cytometer. This analysis method requires markedly less effort than, for example, the µ-FTIR or µ-Raman spectroscopy currently used. In the pilot scale, the type of plastic can be determined on site (i.e. in a WWTP operated by BWB or AW) depending on the repertoire of binders available.
Based on the lab trials, a pilot unit will be installed at a storm- and rainwater collection side, e.g. a stormwater pond. The location of the pilot unit will be defined in association with SWR. Based on Task 1.3. and considering the findings of Task 1.5, the best ultrafiltration membrane will be installed in the pilot and the optimal process conditions defined will be used as start parameter for the testing of the full-scale pilot. The initial test will be conducted without degradation of the micro- and nano-plastics in the tank of DMF unit to confirms process parameter on pilot scale and generate benchmark data. In a second step the biological method developed in Task 1.1 by RTU will be integrated in tank of the DMF unit. The pre-defined process conditions will be operated and then optimized. The degradation and filtration efficiency of the integrated water purification and nano-/micro-plastic degradation system will be measured using the technology developed by HZB in Task 1.2. The operation with regard to membrane fouling and membrane cleaning will monitored and optimized.

2,969 / 3,000 characters

5.6.4 This group of activities leads to the development of a deliverable

O 2.1

Title of the output

Green technologies for micropollutant removal from wastewater streams

69 / 100 characters

Description of the output

Joint work of RTU, LU, HZB, LHEI, SWR, AW, BWB, Charite will result in development of a green pilot system for micropollutant removal. To ensure the acceptance of target-groups various technologies will be prepared, tested and adjusted to provide maximum information for the end-user, including technical data, economic assessment and sustainability.
Furthermore, this output will be joined with O2.2. to approach target groups and disseminate among the decision makers.
The output will contain a compendium of technical data, process flows and visual information related to the developed solutions.

603 / 3,000 characters

Target groups and uptake of the solution presented in this output

Target groups	How will this target group apply the output in its daily work?
Target group 1 Infrastructure and public service provider Water and wastewater treatment utilities (whole Baltic Sea region, e.g., Adazi Water, Riga Water, Berliner Wasserbetriebe, VA Syd, NSWR)	The solutions will be developed in Latvia, Sweden and Germany, so regular monitoring and technology assessment will be possible by 1) target groups of the respective countries; 2) target-group expert participation in demo events of other partner locations. First instalments will occur in Adazi Water WWTP and Sweden water research operated WWTPs. 349 / 1,000 characters
Target group 2 NGO Opinion leaders, decision influencers (Latvian Water and Wastewater Works Association, Sweden Water Research, VA Teknik Södra, DRICKS, Alles im Fluss)	The pilot technology will be introduced in the NGO portfolio as potential tool for sustainable management strategy development. During of organisation of seminars, NGOs will include BalticMicroTreat members as potential speakers and participants to better transfer the provided solution. 287 / 1,000 characters

Durability of the output

Joint work of RTU, LU, HZB, LHEI, SWR, AW, BWB will result in development of a green pilot system for micropollutant removal. By joining practical demonstration data with social design study outputs, the partners will make a more targeted approach to the boards of WWTPs (or decision makers of related municipalities) to introduce or fund further operation of the provided technologies.
Since one of the specific aims of the project is to understand the behaviour of the end-users, tackle their interest and act accordingly, it is expected that after the end of the project the solution will remain operating in the WWTP utility.

631 / 1,000 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.2: WP2 Piloting and evaluating solutions						
A.2.1: Green sustainable pilot system for micropollutant removal from wastewater						
O.2.1: Green technologies for micropollutant removal from wastewater streams						

5.6.7 This deliverable/output contains productive or infrastructure investment

WP 2 Group of activities 2.2

5.6.1 Group of activities leader

Group of activities leader PP 5 - Rīga Stradiņš University

A 2.2

5.6.2 Title of the group of activities

Development of design-based solution to facilitate implementation of the developed technologies

95 / 100 characters

5.6.3 Description of the group of activities

Task 2.2. takes the deliverable 1.4. as the empirical basis for further development. The main goal at this stage is to develop a design-based solution to change social behaviour of the target groups, to develop and test a pilot in one of the involved municipalities (the decision on the municipality in which the pilot will be tested will be made upon the commencement of the project, evaluating the potential and cooperative flexibility of the partner organisations). The background idea for Task 2.2. is the assumption (most prominently known from behavioural economics, see e.g., works by Daniel Kahneman, Richard Thaler and Cass Sunstein) that behaviour is not necessarily based on conscious and rational thinking and understanding of problems, but very often is biased and adjusted to the actual social or structural situation. The approach taken will combine social design (i.e., specific design of social processes that facilitate uptake of the technologies) in combination with elements of choice architecture and user experience design. The overall goal of the developed design solution is to shape the social environment (processes in combination with some elements of structural design) in order to facilitate uptake of the suggested technologies without the need to rely on rational decisions that are made on the basis of specific information. The process of the solution will combine the research-based empirical knowledge generated during Task 1.4. The designers will work in collaboration with the ethnographers in order to develop the best solutions for the social design. During Task 2.2. the design solution will be tested in one of the municipalities together with group of activities 2.1. The results will be assessed and the design-based solution reconfigured if necessary. However, this solution will be deployed hand in hand with more traditional “information->understanding->changed behaviour” type of valorisation of the solutions provided by the project (see WP 3 for more details).

2,011 / 3,000 characters

5.6.4 This group of activities leads to the development of a deliverable

O 2.2

Title of the output

Social-design based solution to facilitate the uptake of the micropollutant removal technologies

96 / 100 characters

Description of the output

The output will consist of documentation of a tested social design solution the aim of which will be to facilitate the uptake of the micropollutant removal technologies. This design solution will be also delivered as an in-situ implementation in at least one of the partner localities. The form and content of that solution will be adjusted to the findings from WP1 and therefore cannot be outlined here in more detail, but will most likely contain modified social processes and in some cases – structural solutions in the environment that support these social processes. The documentation will describe the social design solution in detail and will be usable elsewhere.

670 / 3,000 characters

Target groups and uptake of the solution presented in this output

Target groups	How will this target group apply the output in its daily work?
Target group 1 Infrastructure and public service provider Water and wastewater treatment utilities (whole Baltic Sea region, e.g., Adazi Water, Riga Water, Berliner Wasserbetriebe, VA Syd, NSWR)	the infrastructure and public service partner (to be selected among the partners) will be able to use the social design solution in the everyday operation. 156 / 1,000 characters
Target group 2 Local public authority Municipalities of the Baltic Sea region, e.g.,Adazi municipality (Latvia),Lund municipality (Sweden), Malmö (Sweden)	The involved municipalities will be involved either through their municipal governance structures or through everyday lives of ordinary citizens as voters who either support or reject implementation of the wastewater treatment technologies in their localities. The main orientation of the design solution will be to avoid the necessity multiple everyday solutions instead supplanting those with default behaviours where possible. 429 / 1,000 characters

Durability of the output

After the end of the project, the in-situ design application in one of the selected partner localities will continue operating as a default part of the social environment thus facilitating further the use of the wastewater treatment technologies. The provided detailed documentation of the solution will enable the other partner municipalities as well as other interested partners to apply the design solution elsewhere.

420 / 1,000 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.2: WP2 Piloting and evaluating solutions						
A.2.2: Development of design-based solution to facilitate implementation of the developed technologies						
O.2.2: Social-design based solution to facilitate the uptake of the micropollutant removal technologies						

5.6.7 This deliverable/output contains productive or infrastructure investment

Work package 3

5.1 WP3 Transferring solutions

5.2 Aim of the work package

In Work Package 3, communicate and transfer the ready solutions to your target groups. Plan at least one year for this work package to transfer your solutions to the target groups, considering their respective needs. Select suitable activities to encourage your target groups to use the solutions in their daily work.
Organise your activities in up to five groups of activities. Describe the deliverables and outputs as well as present the timeline.

5.3 Work package leader

Work package leader 1 PP 4 - Association "Baltic Coasts"

Work package leader 2 PP 2 - Latvian Institute of Aquatic Ecology

5.4 Work package budget

Work package budget 30%

5.5 Target groups

	Target group	How do you plan to reach out to and engage the target group?
1	Infrastructure and public service provider Water and wastewater treatment utilities (whole Baltic Sea region, e.g., Adazi Water, Riga Water, Berliner Wasserbetriebe, VA Syd, NSWR) 136 / 500 characters	This target group will be directly involved in the Task 3.1. "Stakeholder engagement", where training workshops and solution demonstrations designed specifically for their needs will take place. Moreover, the group will be invited to participate in stakeholder meetings and informed about the project updates regularly. 320 / 1,000 characters
2	Local public authority Municipalities of the Baltic Sea region, e.g.,Adazi municipality (Latvia),Lund municipality (Sweden), Malmö (Sweden) 117 / 500 characters	This target group will be invited to the stakeholder workshops in the Task 3.1. "Stakeholder engagement". In task Task 3.2. "Transferring project outcomes to the general public and scientific community", participation in municipality-organized events is planned, therefore close collaboration with municipalities is planned in this task as well. The short documentary created under Task 3.1. will also target this group. 422 / 1,000 characters
3	NGO Opinion leaders, decision influencers (Latvian Water and Wastewater Works Association, Sweden Water Research, VA Teknik Södra, DRICKS, Alles im Fluss) 150 / 500 characters	This group will be engaged with the stakeholder meetings in Task 3.1. "Stakeholder engagement", as well as with the communication targeted towards the general audience in Task 3.2. "Transferring project outcomes to the general public and scientific community". For the NGO's dealing specifically with water treatment topics, the training workshops for practitioners will be organized under Task 3.2. 403 / 1,000 characters

5.6 Activities, deliverables, outputs and timeline

No.	Name
3.1	**Stakeholder engagement**
3.2	**Transferring project outcomes to the general public and scientific community**
3.3	**Implementation of the design-based solution in the municipalities**

WP 3 Group of activities 3.1

5.6.1 Group of activities leader

Group of activities leader PP 4 - Association "Baltic Coasts"

A 3.1

5.6.2 Title of the group of activities

Stakeholder engagement

23 / 100 characters

5.6.3 Description of the group of activities

Considering that the solutions developed and evaluated in WP1 and WP2 are novel in the partner regions, training workshops and seminars are crucial for the transfer of knowledge. Therefore, this task aims to inform the key stakeholder groups and provide practitioners with the training needed in order to implement the solutions in their work:

Organising 2 interregional training workshops for practitioners/industry experts. The workshops will focus on the key steps for implementing solutions developed in tasks 1.1, 1.2., 1.3 and serve as a chance to fill the knowledge gaps of practitioners with less experience in implementing technologies related to micropollutants. The target groups invited to these workshops will be water treatment facility operators and engineers, municipality employees. The associated organisation Latvian Water and Wastewater Works Association will be involved in disseminating the training materials to the target groups.

Organising 5 seminars for project stakeholders in various project countries. Involvement of stakeholder groups is crucial for ensuring the long-term impact of the project as well as raising credibility of the solutions developed. The seminars will be organised once per 6 months. The topics of the seminars will be determined based on the project progress and the deliverables of WP1 and WP2 will be presented to the stakeholders.

1,399 / 3,000 characters

5.6.4 This group of activities leads to the development of a deliverable ☐

O 3.1

Title of the output

BalticMicroTreat factsheet: micropollutant removal at various stages of WWTP

77 / 100 characters

Description of the output

The output will comprise illustrative, digital and practical information about the activities of the BalticMicroTreat, including micropollutant roadmap within WWTP, expert visits and demonstration events.

205 / 3,000 characters

Target groups and uptake of the solution presented in this output

Target groups	How will this target group apply the output in its daily work?
Target group 1 Infrastructure and public service provider Water and wastewater treatment utilities (whole Baltic Sea region, e.g., Adazi Water, Riga Water, Berliner Wasserbetriebe, VA Syd, NSWR)	The output will help the target-group representatives to acquire the results and acheivments of BalticMicroTreat in an understandable and clear manner. 152 / 1,000 characters
Target group 2 Local public authority Municipalities of the Baltic Sea region, e.g.,Adazi municipality (Latvia),Lund municipality (Sweden), Malmö (Sweden)	The output will help the target-group representatives to acquire the results and acheivments of BalticMicroTreat in an understandable and clear manner. 152 / 1,000 characters
Target group 3 NGO Opinion leaders, decision influencers (Latvian Water and Wastewater Works Association, Sweden Water Research, VA Teknik Södra, DRICKS, Alles im Fluss)	Acting as both direct target groups and representatives of general public, Target group No. 3 will aid to distribution of the output to other target-groups and general public. 176 / 1,000 characters

Durability of the output

The document together with the digital material will be available for use of all interested parties to promote the BalticMicroTreat project results, integrate novel solutions and use the social design based solution in other countries of the Baltic Sea, that are not partners of the BalticMicroTreat

299 / 1,000 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.3: WP3 Transferring solutions						
A.3.1: Stakeholder engagement						
O.3.1: BalticMicroTreat factsheet: micropollutant removal at various stages of WWTP						

5.6.7 This deliverable/output contains productive or infrastructure investment

WP 3 Group of activities 3.2

5.6.1 Group of activities leader

Group of activities leader PP 4 - Association "Baltic Coasts"

A 3.2

5.6.2 Title of the group of activities

Transferring project outcomes to the general public and scientific community

76 / 100 characters

5.6.3 Description of the group of activities

This task covers the activities crucial for disseminating information about the project to the general public, scientific community (secondary target groups of the project): and contribution to an EU-wide event that is seen as Contribution to Project communication:

1. Ensuring the communication requirements set in the INTERREG programme – running the project subpage and developing communication products, placing plaques and posters where applicable, ensuring that visibility requirements are adhered to in all project activities.
2. Distributing information in online media – running a project page on Facebook, ResearchGate and placing news on project partner websites.
3. Creating a short documentary (5-7 min) about the technologies developed and implemented in the project. The video will feature an overview of all pilot sites developed within the project and interviews with project partners.
4. Participating in 2 third party events organized by municipalities for the general public. These events will provide with the opportunity to closely interact with the local societies and inform about the projects' impact on the wastewater treatment practices in the municipality.

Considering the innovative nature of the solutions developed, communicating the project outcomes to the scientific community and educational institutions is crucial for ensuring that the technical information about solutions developed are available for future users. The task entails these activities:
1. Developing at least 5 scientific publications: 1) on the technology developed and the implementation process. This publication will give an overview of the technological solutions for micropollutant treatment developed in WP1. The publications will also evaluate the efficiency of each solution based on the outcomes of task 2.1. ; 2) on the social research conducted on social environment of the use of the technologies. This publication will be based on deliverables 1.4 and 2.2.
2. Organizing 2 workshops for the scientific community. Each workshop will be based on one of the publications developed in this task. The workshops will target researchers of the respective fields and give in depth explanations of the water treatment solutions developed and the social environment studies conducted, offering the chance for further research opportunities based on the project deliverables.
3. Participating in 1 scientific conference. This activity will be a chance to transfer the contents of the publications developed to a wider scientific audience and increase the overall project visibility.
4. Organizing 2 study visits for university students. These study visits will provide students of natural sciences and engineering with practical knowledge on micropollutant treatment in the pilot sites.

2,837 / 3,000 characters

5.6.4 This group of activities leads to the development of a deliverable ✔

D 3.2

Title of the deliverable

Transferring activities of BalticMicroTreat

43 / 100 characters

Description of the deliverable

Report on activities performed to transfer the activities of BalticMicroTreat to general public and scientific community.

122 / 2,000 characters

Which output does this deliverable contribute to?

O 3.1 BalticMicroTreat factsheet: micropollutant removal at various stages of WWTP

82 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.3: WP3 Transferring solutions						
A.3.2: Transferring project outcomes to the general public and scientific community						
D.3.2: Transferring activities of BalticMicroTreat						

5.6.7 This deliverable/output contains productive or infrastructure investment ☐

WP 3 Group of activities 3.3

5.6.1 Group of activities leader

Group of activities leader PP 5 - Rīga Stradiņš University

A 3.3

5.6.2 Title of the group of activities

Implementation of the design-based solution in the municipalities

66 / 100 characters

5.6.3 Description of the group of activities

This task rests on the results of the deliverable 2.4. and deploy the solution in at least one of the partner municipalities. The documentation will be presented and demonstrated at the seminars with stakeholders during the Tasks 3.1. and 3.2. and the design solution will be implemented in at least one of the partner municipalities on a permanent basis. The activity will directly contribute to the outcome O2.2.

414 / 3,000 characters

5.6.4 This group of activities leads to the development of a deliverable ☑

D 3.3

Title of the deliverable

Practical deployment of the design solution in one of the partner municiplaities

80 / 100 characters

Description of the deliverable

This will be in-situ application of the solutions developed during WP2 along with the documentation of this solution ready to be implemented elsewhere

150 / 2,000 characters

Which output does this deliverable contribute to?

O2.2Social-design based solution to facilitate the uptake of the micropollutant removal technologies

100 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.3: WP3 Transferring solutions						
A.3.3: Implementation of the design-based solution in the municipalities			■	■	■	■
D.3.3: Practical deployment of the design solution in one of the partner municiplaities					■	

5.6.7 This deliverable/output contains productive or infrastructure investment ☐

6. Indicators

Indicators

Output indicators				Result indicators		
Output indicators	**Total target value in number**	**Project outputs**	**Please explain how the solution presented in this output serves the target group(s).**	**Result indicator**	**Total target value in number**	**Please explain how organisations in the target groups within or outside the partnership will take up or upscale each solution.**
RCO 84 – Pilot actions developed jointly and implemented in projects	1	N/A	N/A	**RCR 104 - Solutions taken up or up-scaled by organisations**	3	The project consortium (including associated partners), includes water utilities from Latvia (Adazi Water), Germany (Berliner Wasserbetriebe) and Sweden (Sweden Water Research). These will be the first target-groups tackled by the project outcomes – these organisations will both pilot the technologies and participate in the social environment studies. Their opinion will be the basis for all needed adjustments and modifications performed during the project and they will directly participate in the production of all BalticMicroTreat outcomes. Further, through active project dissemination (the activities of WP3 will last all through the project to ensure sufficient and effective communication) NGOs and local authorities will be invited to participate, especially in the transfer activities. To achieve the aim of the project, the consortium will tackle as many decision makers as possible through existing communities and other Interreg BSR consortia members. No activity will be fulfilled without the regular involvement of the stakeholders. After active work over 3 years, the consortium sees that some of the approaches will be introduced, as a result of increased trust, change in the perception and overall social environment. 1,239 / 2,000 characters
RCO 116 – Jointly developed solutions	3	O.2.1: Green technologies for micropollutant removal from wastewater streams	Up till now, when new infrastructure investments are being made by water utilities the preference is to select those technologies that have been previously applied, are well known or being suggested by the opinion leaders. The selection of novel and, moreover, green sustainable technologies is often avoided by pretexts that there is “a lack of information”. The O2.1. output of BalticMicroTreat will comprise knowledge, technical data, and piloting results of various scientific green technologies for the selection of target groups to install as micropollutant control measures in wastewater streams. 603 / 1,000 characters			
		O.2.2: Social-design based solution to facilitate the uptake of the micropollutant removal technologies	Developing, piloting and demonstrating a technology is a common set-up for many EU based projects, including Interreg BSR. The biggest challenge that has been identified by these projects is related to the afterlife of the developed technologies and tools. Most often after the end of the project these end too. The rationale of the BalticMicroTreat and O2.2. in particular is to understand the reasons why the novel technologies are not preferred, what are the factors and driving forces of the target-groups not to integrate them in their infrastructure. O2.2. will provide insights into these issues and the results will be applicable for other solutions, not only technologies for micropollutant removal from wastewater. 724 / 1,000 characters			

Output indicators	Total target value in number	Project outputs	Please explain how the solution presented in this output serves the target group(s).
		O.3.1: BalticMicroTreat factsheet: micropollutant removal at various stages of WWTP	O2.1. and O2.2. are specific outputs of the project aim targeted to the direct stakeholder groups, at the same time the consortium of the BalticMicroTreat is strongly confident that the results of the project are important for other secondary target-groups, e.g, scientific community (novel green technologies for micropollutant removal), students, environmental experts, public in general, and technical workers of water utilities. The O2.3. will provide clear, concise, but valuable information for these groups to understand the importance of BalticMicroTreat aims and results. 580 / 1,000 characters

Output indicators		Result indicators			
Output indicator	**Total target value in number**	**Result indicator**	**Total target value in number**	**Please describe what types of organisations are planned to actively participate in the project. Explain how this participation will increase their institutional capacity. These types of organisations should be in line with the target groups you have defined for your project.**	
RCO 87 - Organisations cooperating across borders	11	**PSR 1 - Organisations with increased institutional capacity due to their participation in cooperation activities across borders**	12	Project partners and associated organisations	The project consortium includes representatives from both water utilities and NGOs. This clearly shows their interest in project activities and outcomes. Invited water utilities are in favour of technology piloting and evaluation at their sites. Efficient cooperation and information exchange will facilitate the introduction of breakthrough green sustainable technologies for micropollutant removal from wastewater in their infrastructure. NGOs will be involved in transfer activities to ensure efficient communication. Due to participation in the BalticMicroTreat project their overall opinion value and knowledge portfolio will be increased by including new aspects of sustainable management of the Baltic Sea. 714 / 1,500 characters
				Other organisations	Firstly, the consortium of the BalticMicroTreat will invite other water utilities to participate in the workshops, field visits and social environment study. At least 8 water utilities from the member states and other Baltic Sea region countries are expected to join the events of the BalticMicroTreat on a regular basis. Much emphasis will be dedicated to communication with local authorities – municipalities. Their participation and engagement will provide the target groups with an in-depth and latest information on project challenges and solutions, demonstrating also the need of their involvement and feedback. Already now, the consortium of the BalticMicroTreat have initiated the discussions with Adazi Municipality to inform about the project aims and intended outputs, any potential joint events to promote sustainable management of the Baltic Sea catchment. 869 / 1,500 characters

7. Budget

7.0 Preparation costs

Preparation Costs

Would you like to apply for reimbursement of the preparation costs?	No

7.1 Breakdown of planned project expenditure per cost category & per partner

No. & role	Partner name	Partner status	CAT1 - Staff	CAT2 - Office & administration	CAT3 - Travel & accommodation
1 - LP	Riga Technical University	Active 22/09/2022	284,751.00	42,712.65	42,712.65
2 - PP	Latvian Institute of Aquatic Ecology	Active 22/09/2022	247,680.00	37,152.00	37,152.00
3 - PP	Lund University	Active 22/09/2022	189,150.00	28,372.50	28,372.50
4 - PP	Association "Baltic Coasts"	Active 22/09/2022	204,000.00	30,600.00	30,600.00
5 - PP	Rīga Stradiņš University	Active 22/09/2022	220,333.00	33,049.95	33,049.95
6 - PP	Adazi Water	Active 22/09/2022	30,000.00	4,500.00	4,500.00
7 - PP	Helmholtz Centre for Materials and Energy	Active 22/09/2022	250,000.00	37,500.00	37,500.00
Total			1,425,914.00	213,887.10	213,887.10

No. & role	Partner name	CAT4 - External expertise & services	CAT5 - Equipment	Total partner budget
1 - LP	Riga Technical University	48,000.00	62,000.00	480,176.30
2 - PP	Latvian Institute of Aquatic Ecology	80,000.00	19,300.00	421,284.00
3 - PP	Lund University	30,000.00	106,500.00	382,395.00
4 - PP	Association "Baltic Coasts"	35,100.00	0.00	300,300.00
5 - PP	Rīga Stradiņš University	80,000.00	5,690.00	372,122.90
6 - PP	Adazi Water	0.00	0.00	39,000.00
7 - PP	Helmholtz Centre for Materials and Energy	5,000.00	70,000.00	400,000.00
Total		278,100.00	263,490.00	2,395,278.20

7.1.1 External expertise and services

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value
1. Riga Technical U	Events/meetings	CAT4-PP1-A-0	Field visit organization, incl., travel expenditures, for end-users. Event organization expenses (96 / 100 characters)	No	2.1 3.1 3.2	30,000.00
1. Riga Technical U	Other	CAT4-PP1-G-0	Technical assistance (set up and transportation) of pilot system (64 / 100 characters)	No	2.1	5,000.00
1. Riga Technical U	Communication	CAT4-PP1-C-0	Publication and communication costs (35 / 100 characters)	No	1.1 2.1 3.1 3.2	10,000.00
1. Riga Technical U	Events/meetings	CAT4-PP1-A-0	Registration fees for conferences (33 / 100 characters)	No	1.1 2.1 3.1 3.2	3,000.00
2. Latvian Institute	Other	CAT4-PP2-G-0	Publication costs (17 / 100 characters)	No	1.5 3.1 3.2	5,000.00
2. Latvian Institute	Other	CAT4-PP2-G-0	Small particles microplastic samples outsourcing analysis (58 / 100 characters)	No	1.5	70,000.00
2. Latvian Institute	Other	CAT4-PP2-G-0	Registration fee in the conferences (35 / 100 characters)	No	3.2	5,000.00
5. Rīga Stradiņš Un	Specialist support	CAT4-PP5-E-0	Development of design solution (30 / 100 characters)	No	1.4 2.2 3.3	30,000.00
5. Rīga Stradiņš Un	Other	CAT4-PP5-G-0	Testing and practical implementation of design solution (55 / 100 characters)	No	1.4 2.2 3.3	50,000.00
4. Association "Balti	Communication	CAT4-PP4-C-1	Development of a short documentary (5-7 min) (44 / 100 characters)	No	3.2	7,000.00
	Total					278,100.00

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value	
4. Association "Balti	Events/meetings	CAT4-PP4-A-1	Costs for 2 trainings, 5 stakeholder seminars, 2 scientific workshops, incl. rent and catering 94 / 100 characters	No	3.1 3.2	18,000.00	
4. Association "Balti	Communication	CAT4-PP4-C-1	Plaques for 3 demonstration sites 33 / 100 characters	No	3.2	2,100.00	
4. Association "Balti	Events/meetings	CAT4-PP4-A-1	Organisation costs for 2 study visits 37 / 100 characters	No	3.1 3.2	8,000.00	
3. Lund University	Other	CAT4-PP3-G-1	External laboratory service 27 / 100 characters	No	1.3 2.1	30,000.00	
7. Helmholtz Centre	Other	CAT4-PP7-G-1	Publication costs 17 / 100 characters	No	3.2	2,000.00	
7. Helmholtz Centre	Other	CAT4-PP7-G-1	Small particles microplastic samples outsourcing analysis 58 / 100 characters	No	1.2 2.1	500.00	
7. Helmholtz Centre	Other	CAT4-PP7-G-1	Registration fee in the conferences 35 / 100 characters	No	3.2	2,500.00	
	Total					278,100.00	

7.1.2 Equipment

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value	
1. Riga Technical U	Tools or devices	CAT5-PP1-F-0	Electronic controllers, pumps for pilot system 46 / 100 characters	No	2.1	5,000.00	
1. Riga Technical U	Other specific equip	CAT5-PP1-H-0	Basic laboratory equipment for regular analyses and tests (balances, precision pipettes) 88 / 100 characters	No	1.1 2.1	3,000.00	
1. Riga Technical U	Laboratory equipmen	CAT5-PP1-D-0	Laboratory consumables, chemicals and microbiological materials 63 / 100 characters	No	1.1 2.1	54,000.00	
	Total					263,490.00	

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value	
5. Rīga Stradiņš Un	IT hardware and soft	CAT5-PP5-B-0	MaxQDA Analytics Pro Software (3 licences) 42 / 100 characters	No	1.4 2.2 3.3	1,890.00	
5. Rīga Stradiņš Un	IT hardware and soft	CAT5-PP5-B-0	Laptops (social study data analysis, processing) 48 / 100 characters	No	1.4 2.2 3.3	3,800.00	
2. Latvian Institute	Laboratory equipmen	CAT5-PP2-D-0	Heavy liquid for samples separation 35 / 100 characters	No	1.5 2.1	2,600.00	
2. Latvian Institute	Laboratory equipmen	CAT5-PP2-D-0	Protection equipment - lab coats, gloves, googles, ear protectors; Chemicals and reagents 89 / 100 characters	No	1.5 2.1	3,100.00	
2. Latvian Institute	Laboratory equipmen	CAT5-PP2-D-0	Sievies, sampling equipment, glass, metal, teflon equipment for samples preparation 83 / 100 characters	No	1.5 2.1	3,900.00	
2. Latvian Institute	Machines and instru	CAT5-PP2-E-0	Separatory funnel shaker 25 / 100 characters	No	1.5 2.1	2,000.00	
2. Latvian Institute	IT hardware and soft	CAT5-PP2-B-1	Microplastic spectral library update 36 / 100 characters	No	1.5 2.1 3.1	3,000.00	
2. Latvian Institute	Laboratory equipmen	CAT5-PP2-D-1	Ice preparation machine; Weighing machine for chemicals 55 / 100 characters	No	1.5 2.1	700.00	
2. Latvian Institute	IT hardware and soft	CAT5-PP2-B-1	Laptops, notebooks 18 / 100 characters	No	1.5 2.1 3.1 3.2	4,000.00	
3. Lund University	IT hardware and soft	CAT5-PP3-B-1	Laptops 7 / 100 characters	No	1.3 2.1 3.1	4,000.00	
3. Lund University	Tools or devices	CAT5-PP3-F-1	DMF small scale pilot/lab unit 30 / 100 characters	No	1.3 2.1	95,000.00	
	Total					263,490.00	

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value	
3. Lund University	Laboratory equipmen	CAT5-PP3-D-1	Membranes, cleaning chemicals 29 / 100 characters	No	1.3 2.1	6,000.00	
3. Lund University	Laboratory equipmen	CAT5-PP3-D-1	General laboratory consumables 30 / 100 characters	No	1.3 2.1	1,500.00	
7. Helmholtz Centre	Laboratory equipmen	CAT5-PP7-D-1	Consumables:chromatography, special enzymes, E. coli cell culture, antibiotics, enzymes, kits 93 / 100 characters	No	1.2 2.1	45,000.00	
7. Helmholtz Centre	Laboratory equipmen	CAT5-PP7-D-1	glass / plasticware, chemicals, gene synthesis, sequencing costs, cDNA Libraries 81 / 100 characters	No	1.2 2.1	20,000.00	
7. Helmholtz Centre	IT hardware and soft	CAT5-PP7-B-1	Software for modelling and AI-based protein design 50 / 100 characters	No	1.2 2.1	3,000.00	
7. Helmholtz Centre	IT hardware and soft	CAT5-PP7-B-2	Laptops, notebooks 18 / 100 characters	No	1.2 2.1	2,000.00	
	Total					263,490.00	

7.1.3 Infrastructure and works

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value	
Please select	Please select	CAT6-PP--01	0 / 100 characters	Please select		0.00	
	Total					0.00	

7.2 Planned project budget per funding source & per partner

No. & role	Partner name	Partner status	Country	Funding source	Co-financing rate [in %]	Total [in EUR]	Programme co-financing [in EUR]	Own contribution [in EUR]	State aid instrument
1-LP	Riga Technical University	Active 22/09/2022	LV	ERDF	80.00 %	480,176.30	384,141.04	96,035.26	For each partner, the State aid relevance and applied aid measure are defined in the **State aid section**
2-PP	Latvian Institute of Aquatic Ecology	Active 22/09/2022	LV	ERDF	80.00 %	421,284.00	337,027.20	84,256.80	
3-PP	Lund University	Active 22/09/2022	SE	ERDF	80.00 %	382,395.00	305,916.00	76,479.00	
4-PP	Association "Baltic Coasts"	Active 22/09/2022	LV	ERDF	80.00 %	300,300.00	240,240.00	60,060.00	
5-PP	Rīga Stradiņš University	Active 22/09/2022	LV	ERDF	80.00 %	372,122.90	297,698.32	74,424.58	
6-PP	Adazi Water	Active 22/09/2022	LV	ERDF	80.00 %	39,000.00	31,200.00	7,800.00	
7-PP	Helmholtz Centre for Materials and Energy	Active 22/09/2022	DE	ERDF	80.00 %	400,000.00	320,000.00	80,000.00	
Total ERDF						2,395,278.20	1,916,222.56	479,055.64	
Total						2,395,278.20	1,916,222.56	479,055.64	

7.3 Spending plan per reporting period

	EU partners (ERDF)		Total	
	Total	Programme co-financing	Total	Programme co-financing
Period 1	119,763.91	95,811.15	119,763.91	95,811.15
Period 2	766,489.02	613,191.21	766,489.02	613,191.21
Period 3	479,055.64	383,244.51	479,055.64	383,244.51
Period 4	479,055.64	383,244.51	479,055.64	383,244.51
Period 5	311,386.17	249,108.93	311,386.17	249,108.93
Period 6	239,527.82	191,622.25	239,527.82	191,622.25
Total	2,395,278.20	1,916,222.56	2,395,278.20	1,916,222.56