1. Identification

Call	Date of submission
C1	25/04/2022

1.1. Full name of the project

Recovery of Critical Materials from Multi-layer Composite Waste in the Baltic Sea Region for Saving of Natural Resources, Reduction of Greenhouse Gas Emissions and Increasing of Added Value.

190 / 250 characters

1.2. Short name of the project

WMC=BSRvalue

12 / 20 characters

1.3. Programme priority

3. Climate-neutral societies

1.4. Programme objective

3.1 Circular economy

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

The project idea supports measures that facilitate the transition from linear to circular resource utilisation for various Waste Multilayer Composites (WMC) such as Waste Multilayer Flexible Packages (WMFP), Waste Printed Circuit Boards (WPCB), Waste Photovoltic Modules (WPM), Waste Optical Sensors (WOS) and other WMC. This means improving the recovery of valuable materials such as polymers, metals, and silicates and returning them to the production cycle to reduce environmental impact. The project will create the opportunity to install new technologies for environmentally and socially sound management in the waste management systems of BSR partner countries. The project's target groups are mainly focused on governmental institutions, although society will also be impacted. In particular, settlements closer to waste management centres are positively impacted as there is less waste transport and less water and air pollution. The introduction of technologies to recover materials from waste will help us achieve the goal of a sustainable circular economy.

1,067 / 1,500 characters

1.8. Summary of the partnership

Invited project partners are research teams from listed universities and research institutes with experience in research related to the project idea. Since the Baltic partners are continuously working on material recycling issues, a natural situation arises where different groups of researchers are working on the same topic. Scientific works reflect the results of individual research groups, but the overall development of the technology is slowed down. These research groups carry out their activities in close cooperation with various authorities and companies in the field of waste management. This means that the participation of universities also determines the de facto participation of other institutions that have an influence on the implementation of the project idea. Regions tend to have one or a few regional waste management centres that are more advanced in waste management. Regional centres tend to pilot technologies on a smaller financial scale. If the technologies prove successful and beneficial, the regional centres tend to invest in technology development. Since the project results are to be disseminated and developed throughout the Baltic Sea Region, the partnerships of institutions from almost all countries in the Baltic Sea Region are practically indispensable for the successful development of the project. Each research group and participant in this project will contribute not only the information they have, but also their expertise and skills to strengthen the teamwork in the project. The research groups will work on different topics to avoid duplication and overlap in research. After the first phase of the project, the research groups will be able to answer what type and how much waste is generated in their representative region. Another important question is in which region it makes sense to develop recycling/material recovery and whether the raw materials will be sufficient for the production to be developed. Of course, the results of the project can serve as a basis for the development of interregional waste exchanges or even waste economy.

2,095 / 3,000 characters

1.11. Project Budget Summary

Financial resources [in EUR]		Preparation costs	Planned project budget
ERDF	ERDF co-financing	0.00	1,152,137.60
	Own contribution ERDF	0.00	288,034.40
	ERDF budget	0.00	1,440,172.00
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	1,152,137.60
	Total own contribution	0.00	288,034.40
	Total budget	0.00	1,440,172.00

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	Kaunas University of Technology	Kauno technologijos universitetas	LT	Higher education and research institution	a)	205,500.00 €	Active	22/09/2022
2	PP	University of Latvia	Latvijas Universitāte	LV	Higher education and research institution	a)	180,940.00 €	Active	22/09/2022
3	PP	Tallinn University of Technology	Tallinna Tehnikaülikool	EE	Higher education and research institution	a)	216,032.00 €	Active	22/09/2022
4	PP	Lappeenranta-Lahti University of Technology	Lappeenrannan-Lahden teknillinen yliopisto	FI	Higher education and research institution	a)	211,900.00 €	Active	22/09/2022
5	PP	Linnaeus University	Linnéuniversitetet	SE	Higher education and research institution	a)	234,000.00 €	Active	22/09/2022
6	PP	Łukasiewicz Research Network – Institute for Sustainable Technologies	Sieć Badawcza ŁUKASIEWICZ - Instytut Technologii Eksploatacji	PL	Higher education and research institution	a)	170,200.00 €	Active	22/09/2022
7	PP	Hamburg University of Technology	Technische Universität Hamburg	DE	Higher education and research institution	a)	221,600.00 €	Active	22/09/2022

2.1.2 Associated Organisations

No.	Organisation (English)	Organisation (Original)	Country	Type of Partner
AO 1	Kaunas Region Waste Management Center	Kauno regiono atliekų tvarkymo centras, VŠĮ	LT	Regional public authority
AO 2	JSC Kauno švara	UAB Kauno švara	LT	Large enterprise
AO 3	Radom Area Chamber of Industry and Commerce	Izba Przemysłowo-Handlowa Ziemi Radomskiej	PL	Business support organisation
AO 4	Polish Chamber of Leather Industry	Ogólnopolska Izba Branży Skórzanej	PL	Business support organisation

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 Kauno technologijos universitetas

33 / 250 characters

Organisation in English Kaunas University of Technology

31 / 250 characters

Department in original language Cheminės technologijos fakulteto Aplinkosaugos technologijos katedra

68 / 250 characters

Department in English Faculty of Chemical Technology, Department of Environmental Technology

70 / 250 characters

Partner location and website:

Address K.Donelaičio g. 73

18 / 250 characters

Postal Code LT-44249

8 / 250 characters

Town Kaunas

6 / 250 characters

Website https://en.ktu.edu/

19 / 100 characters

Country Lithuania

NUTS1 code Lietuva

NUTS2 code Vidurio ir vakarų Lietuvos regionas

NUTS3 code Kauno apskritis

Partner ID:

Organisation ID type Legal person's code (Juridinio asmens kodas)

Organisation ID 111950581

VAT Number Format LT + 9 digits

VAT Number N/A ☐ LT119505811

11 / 50 characters

PIC 999844961

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? Yes

Role of the partner organisation in this project:

Kaunas University of Technology (KTU) has a coordinating role and will be responsible for the successful implementation of the project in Lithuania, for contacts with Lithuanian associated organizations and Lithuanian target groups. During entire project, KTU, in contact with these organizations, will organize the collection and systematization of information on the waste recycling situation, emphasizing the situation of multi-layer composite waste. Also the situation on the performed scientific research of waste multilayer composites separation in Lithuania will be reflected by KTU. Further KTU will carry out research on the environmental sustainability of the different materials recovery options for multi-layer composite waste materials and compare them to the current treatment of those materials. KTU will also provide the regional possibilities of the multi-layer composite waste materials recovery in Lithuanian waste management regions, including Kaunas waste management region.

995 / 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 2

LP/PP Project Partner

Partner Status Active

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

Partner name:

Organisation in original language Latvijas Universitāte (21 / 250 characters)

Organisation in English University of Latvia (20 / 250 characters)

Department in original language Ķīmiskās fizikas institūts (26 / 250 characters)

Department in English Institute of Chemical Physics (29 / 250 characters)

Partner location and website:

Address Raiņa bulvāris 19 (17 / 250 characters)

Postal Code LV-1586 (7 / 250 characters)

Town Riga (4 / 250 characters)

Website www.kfi.lu.lv (13 / 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 90000076669

VAT Number Format LV + 11 digits

VAT Number N/A ☐ LV90000076669 (13 / 50 characters)

PIC 999871830 (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? Yes

Role of the partner organisation in this project:

University of Latvia (LU) will responsible for the successful implementation of the project in Latvia, for contacts with Latvian associated organizations and Latvian target groups. During the three main phases of the project, LU, in contact with these organizations, will organize the collection and systematization of information on the waste recycling situation, emphasizing the situation of multi-layer composite waste. Also the situation on the performed scientific research of waste multilayer composites separation in Latvia will be reflected by LU. Further LU will carry out research on the environmental sustainability of the different materials recovery options for multi-layer composite waste materials and compare them to the current treatment of those materials. LU will also provide the regional possibilities of the multi-layer composite waste materials recovery in Latvian waste management regions.

913 / 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 Tallinna Tehnikaülikool

23 / 250 characters

Organisation in English Tallinn University of Technology

32 / 250 characters

Department in original language Mehaanika ja tööstustehnika instituut

37 / 250 characters

Department in English Department of Mechanical and Industrial Engineering

51 / 250 characters

Partner location and website:

Address Ehitajate tee 5

16 / 250 characters

Postal Code 19086

5 / 250 characters

Town Tallinn

7 / 250 characters

Website www.taltech.ee

14 / 100 characters

Country Estonia

NUTS1 code Eesti

NUTS2 code Eesti

NUTS3 code Põhja-Eesti

Partner ID:

Organisation ID type	Registration code (Registrikood)
Organisation ID	74000323
VAT Number Format	EE + 9 digits
VAT Number	N/A ☐ EE100224841 (11 / 50 characters)
PIC	999842536 (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:

Tallinn University of Technology (TalTech) will responsible for implementation of project in Estonia, for contacts with Estonian associated organizations and Estonian target groups. In contact with these organizations, the collection and systematization of information on the waste recycling situation, emphasizing the situation of multi-layer composite waste, will be organized. Also the situation on the performed researches of waste multilayer composites separation in Estonia will be reflected. Further TalTech will carry out research which mainly be focused on design of prototype with the help of concurrent methods (for example 3D printing, multi axial CNC machining, etc), optimization, development of recommendations, participation in LCA analysis (collection of data, etc), dissemination, improvement of education curriculum etc. TalTech will also provide the information regarding regional possibilities of the multi-layer composite waste materials recovery in Estonian regions.

990 / 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 4

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

Partner name:

Organisation in original language	Lappeenrannan-Lahden teknillinen yliopisto (42 / 250 characters)
Organisation in English	Lappeenranta-Lahti University of Technology (44 / 250 characters)

Department in original language	Kestävyystutkimus (17 / 250 characters)
Department in English	Department of Sustainability Science (36 / 250 characters)

Partner location and website:

Address	Yliopistonkatu 34 (17 / 250 characters)	**Country**	Finland
Postal Code	53850 (5 / 250 characters)	**NUTS1 code**	Manner-Suomi
Town	Lappeenranta (12 / 250 characters)	**NUTS2 code**	Etelä-Suomi
Website	www.lut.fi (11 / 100 characters)	**NUTS3 code**	Etelä-Karjala

Partner ID:

Organisation ID type	Business Identity Code (Y-tunnus)
Organisation ID	1020799-6
VAT Number Format	FI + 8 digits
VAT Number	**N/A** ☐ FI02459042 (10 / 50 characters)
PIC	999591209 (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:

Lappeenranta-Lahti University of Technology (LUT University) will responsible for the successful implementation of the project in Finland, for contacts with Finish associated organizations and Finish target groups. During the three main phases of the project, LUT University, in contact with these organizations, will organize the collection and systematization of information on the waste recycling situation, emphasizing the situation of multi-layer composite waste. Also the situation on the performed scientific research of waste multilayer composites separation in will be reflected by LUT University. Further LUT University will carry out research on the environmental sustainability of the different materials recovery options for multi-layer composite waste materials and compare them to the current treatment of those materials. LUT will also study the regional possibilities of the multi-layer composite waste materials recovery in South-East Finland.

962 / 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 5

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

Partner name:

Organisation in original language	Linnéuniversitetet (18 / 250 characters)
Organisation in English	Linnaeus University (19 / 250 characters)
Department in original language	Institutionen för biologi och miljö (35 / 250 characters)
Department in English	Department of Biology and Environmental Science (47 / 250 characters)

Partner location and website:

Address	Stuvaregatan 2 (15 / 250 characters)	**Country**	Sweden
Postal Code	392 31 (6 / 250 characters)	**NUTS1 code**	Södra Sverige
Town	Kalmar (6 / 250 characters)	**NUTS2 code**	Småland med öarna
Website	www.lnu.se (10 / 100 characters)	**NUTS3 code**	Kalmar län

Partner ID:

Organisation ID type	Organisation number (Organisationsnummer)
Organisation ID	202100-6271
VAT Number Format	SE + 12 digits
VAT Number	**N/A** ☐ SE202100627101 (14 / 50 characters)
PIC	986317632 (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? Yes

Role of the partner organisation in this project:

Linnaeus University (LNU) will responsible for implementation of the project in Sweden, for contacts with Swedish associated organizations and Swedish target groups. During the three main phases of the project, LNU, in contact with these organizations, will organize the collection and systematization of information on the waste recycling situation, emphasizing the situation of multi-layer composite waste. Also the situation on the performed researches of waste multilayer composites separation in Sweden will be reflected by LNU. Further LNU will carry out research on the environmental sustainability of the different materials recovery options for multi-layer composite waste materials and compare them to the current treatment of those materials. LNU will also provide the regional possibilities of the multi-layer composite waste materials recovery in some South Sweden Regions including Kalmar region. These initiatives shall startup material separation among waste companies in region.

995 / 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 Sieć Badawcza ŁUKASIEWICZ - Instytut Technologii Eksploatacji

61 / 250 characters

Organisation in English Łukasiewicz Research Network – Institute for Sustainable Technologies

70 / 250 characters

Department in original language Grupa Badawcza Zarządzania Behawioralnego w Innowacyjności - Centrum Badań Edukacji Zawodowej i Zarządzania Innowacjami

119 / 250 characters

Department in English Hybrid Learning and Behavioural Economics Lab - Research Center for Vocational Education and Innovation Management

114 / 250 characters

Partner location and website:

Address Pulaskiego 6/10

15 / 250 characters

Postal Code 26-600

6 / 250 characters

Town Radom

5 / 250 characters

Website www.itee.lukasiewicz.gov.pl

27 / 100 characters

Country Poland

NUTS1 code Makroregion województwo mazowieckie

NUTS2 code Mazowiecki regionalny

NUTS3 code Radomski

Partner ID:

Organisation ID type	Tax identification number (NIP)
Organisation ID	7960035805
VAT Number Format	PL + 10 digits
VAT Number	N/A ☐ PL7960035805 (12 / 50 characters)
PIC	949074191 (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:

Łukasiewicz Research Network – Institute for Sustainable Technologies (L-ITEE) will responsible for the successful implementation of the project in Poland, for contacts with Polish associated organizations and Polish target groups. During the three main phases of the project, L-ITEE, in contact with these organizations, will organize the collection and systematization of information on the waste recycling situation, emphasizing the situation of multi-layer composite waste. Also the situation on the performed scientific research of waste multilayer composites separation in Poland will be reflected by L-ITEE. Further L-ITEE will carry out research on the environmental sustainability of the different materials recovery options for multi-layer composite waste materials and compare them to the current treatment of those materials. L-ITEE will also provide the regional possibilities of the multi-layer composite waste materials recovery in some Polish regions including Mazowia.

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

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	Technische Universität Hamburg (30 / 250 characters)
Organisation in English	Hamburg University of Technology (32 / 250 characters)

Department in original language	Institute for Circular Resource Engineering and Management (58 / 250 characters)
Department in English	Institute for Circular Resource Engineering and Management, Bio- and Procesengineering (86 / 250 characters)

Partner location and website:

Address	Blohmstr. 15 (12 / 250 characters)	**Country**	Germany
Postal Code	21079 (5 / 250 characters)	**NUTS1 code**	Hamburg
Town	Hamburg (7 / 250 characters)	**NUTS2 code**	Hamburg
Website	www.tuhh.de (11 / 100 characters)	**NUTS3 code**	Hamburg

Partner ID:

Organisation ID type	Other registration number (Sonstige)
Organisation ID	Öffentliche Einrichtung (23 / 50 characters)
VAT Number Format	DE + 9 digits
VAT Number	N/A ☑ (0 / 50 characters)
PIC	999838753 (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:

Hamburg University of Technology (TUHH) will responsible for the successful implementation of the project in German Länder of BSR, for contacts with regional associated organizations and target groups. During the three main phases of the project, TUHH, in contact with these organizations, will organize the collection and systematization of information on the waste recycling situation, emphasizing the situation of multi-layer composite waste. Also the situation on the performed scientific research of waste multilayer composites separation in northern Länder of Germany will be reflected by TUHH. Further TUHH will carry out research on the environmental sustainability of the different materials recovery options for multi-layer composite waste materials and compare them to the current treatment of those materials. TUHH will also provide the regional possibilities of the multi-layer composite waste materials recovery in some German Länder of BSR including Hamburg.

973 / 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

2.3 Associated Organisation Details - AO 1

Associated organisation name and type:

Organisation in original language
Kauno regiono atliekų tvarkymo centras, VŠĮ
43 / 250 characters

Organisation in English
Kaunas Region Waste Management Center
37 / 250 characters

Department in original language
-
1 / 250 characters

Department in English
-
1 / 250 characters

Legal status
a) Public

Type of associated organisation
Regional public authority
Regional council, etc.

Associated organisation location and website:

Address
Pramonės pr. 4A
15 / 250 characters

Country
Lithuania

Postal Code
LT-51329
8 / 250 characters

Town
Kaunas
6 / 250 characters

Website
http://www.kaunoratc.lt
24 / 100 characters

Role of the associated organisation in this project:

Kaunas Region Waste Management Center is functioning in order to control of coherent and sustainable waste management system in Kaunas region. The shareholders of the institution are 6 Kaunas county municipalities including Kaunas city and Kaunas district and UAB Kauno švara. In the Treaty establishing the Region, the municipalities undertook to adhere to the principles of creating a unified waste management system for the successful implementation of the project of national significance. The roles of Kauno RATC in this project are:
- to highlight the benefits of this project idea for Lithuanian Kaunas region and entire Lithuania;
- to help assess the economic and environmental benefits of a project idea for Lithuania;
- to provide the ground for operation in accordance with the project objectives, including implementation of technologies for separation of multilayer composite waste like multilayer flexible packaging waste, waste printed circuit boards, used solar cells and textile.

999 / 1,000 characters

2.3 Associated Organisation Details - AO 2

Associated organisation name and type:

Organisation in original language
UAB Kauno švara
15 / 250 characters

Organisation in English
JSC Kauno švara
15 / 250 characters

Department in original language
-
1 / 250 characters

Department in English
-
1 / 250 characters

Legal status
b) Private

Type of associated organisation
Large enterprise
≥ 250 employees

Associated organisation location and website:

Address
Statybininkų g. 3
17 / 250 characters

Country
Lithuania

Postal Code
LT-50124
8 / 250 characters

Town
Kaunas
6 / 250 characters

Website
http://www.svara.lt
19 / 100 characters

Role of the associated organisation in this project:

UAB Kauno Švara is one of the leading waste management companies in Lithuania with significant experience in improving the environment. Together with the Kaunas City Municipality Administration, it implements the Environmental Protection Policy in the field of waste management. Waste sorting and recycling of secondary raw materials will reduce the use of raw materials and natural resources.
The role of Kauno Švara in the project is:
- to help assess the economic and environmental benefits of a project idea;
- to provide the ground for operation in accordance with the objectives of the project including treatment of multilayer flexible packaging waste.

660 / 1,000 characters

2.3 Associated Organisation Details - AO 3

Associated organisation name and type:

Organisation in original language
Izba Przemysłowo-Handlowa Ziemi Radomskiej
42 / 250 characters

Organisation in English
Radom Area Chamber of Industry and Commerce
43 / 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
Business support organisation

Chamber of commerce, chamber of trade and crafts, business incubator or innovation centre, business clusters, etc.

Associated organisation location and website:

Address
Rwanska 8
9 / 250 characters

Country
Poland

Postal Code
26-600
6 / 250 characters

Town
Radom
5 / 250 characters

Website
https://radomskibiznes.pl/
26 / 100 characters

Role of the associated organisation in this project:

Chamber of Commerce conducts a series of trainings to facilitate the adaptation of entrepreneurs to changes in legal regulations regarding business and modern management, provides its members with economic, legal and financial advice, organizes bilateral meetings, acquires partners for economic cooperation.
In this project the activities of the Chamber of Commerce are the following:
- project dissemination activities;
- recruitment of participants to the activities defined in the project proposal;
- activites related to the wide utilisation of the project results according to the project methodology.

607 / 1,000 characters

2.3 Associated Organisation Details - AO 4

Associated organisation name and type:

Organisation in original language
Ogólnopolska Izba Branży Skórzanej
34 / 250 characters

Organisation in English
Polish Chamber of Leather Industry
34 / 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
Business support organisation
Chamber of commerce, chamber of trade and crafts, business incubator or innovation centre, business clusters, etc.

Associated organisation location and website:

Address
Prof. Włodzimierza Krukowskiego 1
33 / 250 characters

Country
Poland

Postal Code
26600
5 / 250 characters

Town
Radom
5 / 250 characters

Website
http://www.oibs.pl/
19 / 100 characters

Role of the associated organisation in this project:

Polish Chamber of Leather Industry provides its members with economic, legal and financial advice, organizes bilateral meetings, acquires partners for economic cooperation.
In this project the activities of the Polish Chamber of Leather Industry are the following:
- project dissemination activities;
- recruitment of participants to the activities defined in the project proposal;
- activites related to the wide utilisation of the project results according to the project methodology.

486 / 1,000 characters

3. Relevance

3.1 Context and challenge

Recovery of materials from waste in the Baltic region has made significant progress during this period. Recycling of metal, glass, paper and plastic waste is increasing, and the management of packaging and used equipment, including used vehicles and used electrical and electronic equipment, is being successfully developed. In this area, the countries of the Eastern Baltic Sea Region, such as Poland, Lithuania, Latvia and Estonia, have taken much from the experience of their Baltic neighbors Germany, Denmark, Sweden and Finland. This enables the entire Baltic Sea region to successfully meet the challenges of a gradual transition to a circular economy, thus contributing to the rational use of natural resources and the reduction of environmental pollution, especially greenhouse gas emissions. However, not all waste can be successfully recycled. A great deal of electronics, packaging and other waste consists of so-called multi-layer composites whose materials must be separated to be successfully used in the production of products. Such waste includes, for example, waste from flexible multilayer packaging, components of electronic devices, and others. All of these wastes contain critical materials such as metals, polymers, silicates, etc. So far, the separation of these and other similar wastes into recyclable materials has been successfully researched at a number of universities in the Baltic Sea region. The results are visible at the laboratory level, in the theoretical development of technological concepts, and in economic and environmental evaluation, although there is a gradual move to pilot studies. If the recovery of valuable materials from these and similar wastes were to be put into practice in the Baltic Sea region, it would further advance the transition to a circular economy, reduce pollution, develop a waste recycling economy, create added value, and increase the prosperity of the population in the region.

1,949 / 2,000 characters

3.2 Transnational value of the project

The idea supports measures that facilitate the transition from linear to circular resource use for various multilayer composite wastes, such as waste from multilayer flexible packaging (WMFP), waste from printed circuit boards (WPCB), waste from solar modules (WSM), and other wastes. This means improving the recovery of critical materials such as polymers, metals and silicates, and returning them to the production cycle to reduce environmental impact. This will create the conditions for environmentally and socially responsible business opportunities in the waste management systems of BSR's partner countries. The successful implementation of the project idea requires the participation of most BSR countries, so it makes sense to involve as many CSR countries as possible in this project. The selection of project partners from Lithuania, Latvia, Estonia, Finland, Sweden, Poland and Germany is based on the results of long-term cooperation in various research and training activities.

992 / 2,000 characters

3.3 Target groups

Target group	Sector and geographical coverage	Its role and needs
National public authority	The national authorities as target groups would be the ministries of environment and economy of all project partner countries such as Lithuania, Estonia, Latvia, Finland, Sweden and Poland. 191 / 500 characters	National ministries of environment and economy could develop a strategy for resource recovery from multilayer composite waste with specific targets for specific deadlines. The specific environmental, economic and economic benefits and the companies involved in the recovery process would be justified. To this end, the ministries would use the research and evaluation results obtained in this project. 401 / 1,000 characters
Regional public authority	The national authorities as target groups would be the ministries of environment and economy of all German states belonging to BSR, such as Schleswig-Holstein, Hamburg, Mecklenburg Vorpommern, Branderburg and Berlin. 217 / 500 characters	The German Federal Ministry of Environment and the Federal Ministry of Economics could develop a strategy for the recovery of resources from multilayer composite waste with specific targets for specific deadlines. The specific environmental, economic, and economic benefits and the companies involved in the recovery process would be justified. To this end, the ministries would use the research and evaluation results obtained in this project. 446 / 1,000 characters

Target group	Sector and geographical coverage	Its role and needs
Infrastructure and public service provid	These target groups are public institutions and/or private companies whose task is the regional coordination of waste management. Following the Lithuanian model, these can be regional waste management centers managed by municipalities and waste management companies. 266 / 500 characters	These target groups could help to collect information on the situation in the management of multilayer composite waste, especially packaging, e-waste and textiles, in order to know the amount of this type of waste in the collected waste stream, as well as its nature and characteristics. Once the expected results of the project are achieved, these target groups could reorganize the mechanism of waste collection and transportation to recycling facilities accordingly. 469 / 1,000 characters
Large enterprise	These target groups would be large public and/or private companies (businesses) that carry out activities such as waste collection and sorting or recycling waste into valuable materials on a regional or even national level. Such companies could be, for example, the waste management company "Kauno švara", the plastic products company UAB "Plasta" and the electronic waste treatment company UAB "EMP Recycling". These companies operate in Lithuania. 449 / 500 characters	According to the expected results of the project, these companies would carry out the recovery of materials from multilayer composite waste and the use of these materials for the production of valuable products in accordance with the strategy developed by the government and regional authorities. For example, "Plasta" could carry out the separation of aluminum-coated packaging waste, then produce the desired products from the recovered polymers and process the recovered aluminum in the form of powder or oxide as a semi-finished product. "EMP Recycling" could separate PCB waste into fiberglass, copper, precious metals and epoxy, and process them appropriately for other uses. 681 / 1,000 characters
Small and medium enterprise	The target groups may also be small and medium-sized enterprises (SMEs) operating in the project partner countries. These SMEs prepare waste for recycling, recover materials, and manufacture certain products for consumption. Such companies for plastic recycling can be, for example, UAB "Retroplast" and UAB "Eco perdirbimas" and others. 338 / 500 characters	According to the expected results of the project, these companies would carry out the recovery of materials from multilayer composite waste and the use of these materials for the production of valuable products in accordance with the strategy developed by regional and local authorities. 288 / 1,000 characters

3.4 Project objective

Your project objective should contribute to:

Circular economy

The main and final objective of this project is to develop an action plan for the Baltic Sea Region based on the research results obtained, which would increase the efficiency of recovering valuable (critical) materials (metals, glass, other inorganic materials, polymers) from currently low recyclable multilayer composite waste. An action plan would significantly promote the transition from a linear to a circular economy while reducing negative environmental impacts, particularly through the conservation of natural resources and the corresponding reduction of greenhouse gas and other emissions generated by the extraction of natural resources (metal ores, oil, etc.) and technological processes (smelting of metals from ores, oil refining, synthesis of organic compounds). This action plan will influence the activities of the identified target groups (ministries, regional institutions, public services, companies) in improving the waste management system in the Baltic Sea region.

989 / 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 Innovation

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

The research results obtained in the BSR research and study facilities on the separation of multilayer composite waste (PCB waste, waste from flexible combi-packaging, used solar cells) into valuable materials are undoubtedly innovative, as they allow the recovery of more materials (not only valuable and rare metals) and the recovery of process materials (e.g. solvents, acids) into the production process. Prototyping and further application of these processes in BSR's waste management systems would impact the following actions:

Action 1: Challenge-driven innovation, as this action targets market-shaping innovations to respond to the major social, environmental, and economic challenges of the 21st century, such as resource efficiency first, with corresponding problems for the circular economy, climate change, and other various environmental challenges.

Action 3: Co-creative Innovation, as the objectives of this action include:
a) increasing the use of co-creation among Baltic Sea Region SMEs by improving their capacity to efficiently transform market demand-driven ideas into innovations;
b) connecting innovation ecosystems across the Baltic Sea Region by developing and testing systematic models and practices to engage Baltic Sea Region SMEs, researchers, test facilities and end-users in co-creation activities;
c) increasing the alignment of regional innovation voucher schemes with transnational co-creation activities across the Baltic Sea Region.

1,475 / 1,500 characters

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

This project also contributes to PA Education, Action 2: International Excellence and Broader Participation in Science and Research. This action focuses on the activities that help the project partners to coordinate the realization of the project tasks. These activities are:
- Facilitating cooperation of science and research policies in the Baltic Sea Region aiming at a common research and innovation space;
- Broadening the participation of the Baltic Sea Region Member States in Horizon Europe;
- Enhancing transnational cooperation in the development and use of existing and new research infrastructures;
- Promoting the mobility of researchers.

655 / 1,500 characters

3.6 Other political and strategic background of the project

Strategic documents	
Project proposal fully reflect EU Circular Economy Action Plan, which presents interrelated initiatives to establish a strong and coherent product policy framework, while key product value chains will be addressed as a matter of priority. The measures will be put in place to reduce waste and ensure a wellfunctioning market for high quality secondary raw materials. It concerns also the key product value chains like electronics, packaging, textile etc. which belongs to multilayer composites.	

495 / 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	

Full name of the project	Funding Source	Use of the project outcomes and/or planned cooperation
Solar Cells Waste Treatment with Recovering of Valuable Materials 65 / 200 characters	Baltic-German University Liaison Office 40 / 200 characters	Project time: 2019. Project partners: Kaunas University of Technology (KTU) University of Latvia (LU) Hamburg University of Technology (TUHH) Main activities of the project : 1. Project management and dissemination of results (KTU, TUHH) 2. Solar cells waste preparation for laboratory investigations (KTU) 3. Laboratory investigations for chemical treatment of solar cells waste and recovering of valuable materials (TUHH, KTU, LU) 4. Investigations for technological application feasibilities of obtained recovering products (KTU). 5. Theoretical designing of system and its units for RSCWs treatment and recovering of Si, Al and Ag; determination of process economic and environmental indicators (KTU, TUHH, LU). 718 / 1,000 characters
PLASTin - All in for plastics recycling 39 / 200 characters	Business Finland and Finnish companies working in the recycling business 72 / 200 characters	PLASTin project is run by LTU University and will end in June 2022. The public results of the project will be available as a public final report and published scientific papers and reports. The project has studied the separation and recycling possibilities of challenging plastic waste materials. Two case examples were plastics of waste electronic and electric equipment (WEEE) and plastics of the liquid board packages. The results of the project can be utilized in the research related to identification and separation of different plastics and materials treated with hazardous brominated flame retardants. The results can also be utilized for research related to sustainability of different treatment and recycling methods of plastics. 741 / 1,000 characters
ECOtronics 10 / 200 characters	Business Finland and Finnish companies working in the electronics business 74 / 200 characters	The project developed sustainable printed electronics and studied their environmental sustainability. It is run by LTU University and have been ended in January 2022. The results of the project can be utilized in the development of the sustainable recycling systems and methods for printed electronics. Printed electronics will be embedded in numerous products in the near future. Such are e.g. food packages, textiles, transportation packages etc.. There is however no recycling system for printed electronics. So they will end up with the reject materials of other recycling systems either to incineration or landfills. The results related to environmental sustainability aspects of printed electronics and printed circuit boards can be utilized in this project for developing sustainable recycling systems for different multi-layer electronic components and devices. 870 / 1,000 characters

Full name of the project	Funding Source	Use of the project outcomes and/or planned cooperation
Re-cycling of Epoxys from Nonferrous E-Waste (RENEW) 53 / 200 characters	EIT Raw Materials 17 / 200 characters	The project is run during 2022-2024 by TalTech in cooperation with other R&D institutions and international companies. The recycling of the Printed Circuit Boards (PCB) by mechanical methods should provide the optimization of parameters by increasing the rate of recovery of critical metals such as Cu, Au, Ag, Ni, Sn, Pd, Pt and also epoxy that that can be used as source for production of fuels. The technology allows to reduce significantly PCBs recycling process CO2 footprint and release of bromine (very often added into PCB to act as flame retardant), harmful to the environment and health. TalTech was previously dealing with recycling of various materials including (but not limited to) cigarettes, plants, clothes, cutting tools, building material, batteries, etc. The project provided deep understanding of the recycling of PCB board (composite). This will help to deal with other products being also made of multilayer composites (for example, solar panels, wind mill blades, etc). 994 / 1,000 characters

3.10 Horizontal principles

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

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.

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

151 / 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.

We 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.

163 / 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.

We confirm that we 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.

181 / 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	Overview of Current Situation for Recycling and Recovering in BSR Waste Management Systems
1.2	Overview of Previous Researches for WMC Recycling and Materials Recovering
1.3	Analysis of Existing Infrastructure for Possible Materials Recovering from WMC in BSR Countries

Number	Work Package Name
2	WP2 Piloting and evaluating solutions

Number	Group of Activity Name
2.1	Additional Required Laboratory Researches Prior to Prototyping of WMC Separation Devices
2.2	Prototypes Development and Testing
2.3	Economic and Environmental Impact Assessment
2.4	Series of meetings with the stakeholders groups

Number	Work Package Name
3	WP3 Transferring solutions

Number	Group of Activity Name
3.1	Preparation of Joint Program for the Improvement of Waste Management Systems in BSR
3.2	Competence roadmap in the area of waste management systems in BSR countries/regions
3.3	Apprenticeship standard for waste management systems in BSR countries/regions
3.4	A readiness assessment tool in waste management systems in BSR countries/regions

Work plan overview

Period:	1	2	3	4	5	6	Leader
WP.1: WP1 Preparing solutions							**PP1**
A.1.1: Overview of Current Situation for Recycling and Recovering in BSR Waste Management Systems							PP1
D.1.1: Deliverable Report for Waste Recycling and Materials Recovering in BSR Waste Management Systems		D					
A.1.2: Overview of Previous Researches for WMC Recycling and Materials Recovering							PP7
D.1.2: Deliverable Report for Research Results in the field of WMC Recycling and Materials Recovering		D					
A.1.3: Analysis of Existing Infrastructure for Possible Materials Recovering from WMC in BSR Countries							PP6
D.1.3: Existing Facilities for Possible Materials Recovering from WMC in BSR Countries: Deliverable Report		D					
WP.2: WP2 Piloting and evaluating solutions							**PP1**
A.2.1: Additional Required Laboratory Researches Prior to Prototyping of WMC Separation Devices							PP1
D.2.1: Results of Additional Laboratory Researches Prior to Prototyping of WMC Separation			D				
A.2.2: Prototypes Development and Testing							PP3
O.2.2: Prototype Devices for WMC Separation and Obtained Products				O			
A.2.3: Economic and Environmental Impact Assessment							PP4
O.2.3: Profitability and Environmental Impact of Materials Recovering from WMC				O			
A.2.4: Series of meetings with the stakeholders groups							PP6
WP.3: WP3 Transferring solutions							**PP6**
A.3.1: Preparation of Joint Program for the Improvement of Waste Management Systems in BSR							PP1
O.3.1: Joint Program for the Improvement of Waste Management Systems in BSR countries and regions						O	
A.3.2: Competence roadmap in the area of waste management systems in BSR countries/regions							PP6
D.3.2: Deliverable report containing the list of knowledge and competences for in waste management systems						D	
A.3.3: Apprenticeship standard for waste management systems in BSR countries/regions							PP6
D.3.3: Apprenticeship standard for waste management systems in BSR countries/regions						D	
A.3.4: A readiness assessment tool in waste management systems in BSR countries/regions							PP6
D.3.4: Deliverable report containing a readiness assessment tool in waste management systems						D	

Outputs and deliverables overview

Code	Title	Description	Contribution to the output	Output/ deliverable contains an investment

D 1.1	Deliverable Report for Waste Recycling and Materials Recovering in BSR Waste Management Systems	This interim report will indeed reflect the overall situation of waste management (municipal waste, industrial waste, etc.) over the last ten years in all countries of BSR EU, including Denmark, which is not participating in the project. In the case of Germany, the information collected will cover the states participating in the program. It will highlight not only the recyclable fraction of the different wastes, but also the materials recovered from them, focusing on packaging, e-waste, textiles and other multilayer composite wastes that require a specific technological process for recycling. The contribution of these wastes to recyclable and non-recyclable waste streams is highlighted.	This deliverable will contribute to the outputs of WP3.	
D 1.2	Deliverable Report for Research Results in the field of WMC Recycling and Materials Recovering	This report will include a review of various articles in scientific journals and conference proceedings, as well as reports on various projects, dissertations, and master's theses. The main topics are technologies for separation of multilayer composites, separated components and their processing into valuable products, process parameters, process economics, and environmental impact.	This deliverable will significantly contribute for outputs obtained in WP2 activities.	
D 1.3	Existing Facilities for Possible Materials Recovering from WMC in BSR Countries: Deliverable Report	This report provides a list of potential companies in BSR countries and regions whose infrastructure would in principle be suitable for recycling, recovery, and further production of WMC products. These may include plastic recycling and production companies, electronic component factories, solar panel factories, textile companies, and WEEE recycling companies. The exact names, types and addresses of small, medium and large enterprises are provided. The cross-country value of this report lies in the potential industrial links between companies in different BSR countries.	This deliverable will contribute to the output of WP3	
D 2.1	Results of Additional Laboratory Researches Prior to Prototyping of WMC Separation	The cross-national value of this report lies in the results of similar studies conducted by the project's partner institutions that answer questions not answered in previous studies described in WP1. This may relate to the regime of the separation processes, the properties of the recovered materials and by-products, and the emissions to the environment caused by the processes. The outline of the report could be based on the project partner institutions (with the exception of LNU and LRN-IST, which are not planning similar activities) or on the WMC types. The description of each study briefly describes the methodology used and comments on the resulting indicators.	This deliverable may contribute to the main output of WP2 - created and tested prototype device.	
O 2.2	Prototype Devices for WMC Separation and Obtained Products	The assembled and tested prototypes of three reactors for physico-chemical separation of WMC and one device for mechanical separation of WMC will be one of the most important outputs of WP2, as their operation will demonstrate the transferability of WMC separation to industrial scale, improving waste recycling, intensifying the transition to a circular economy throughout the BSR region, and reducing environmental impact. This evidence confirms the transnational value of such a WP2 outcome. The prototype equipment will include control systems for process parameters (temperature, pH, ultrasonic level, mixing speed, etc.), systems for feeding and discharging materials, and control systems for pollutant emissions. Prototypes of these devices as WP2 deliverables will be accompanied by samples of materials obtained from WMC with protocols for testing their composition (e.g., elemental composition) and properties (e.g., mechanical properties). These may be various polymers, resins, glass in the form of fibers and scrap, various metals (Si, Cu, Al, Pb, Au, Ag, etc.) in the form of powders and oxides, and other valuable (critical) materials.		
O 2.3	Profitability and Environmental Impact of Materials Recovering from WMC	Both the economic and environmental evaluation will be based on the results of the tests of the prototype plant and the recyclables obtained from it. The cost-effectiveness of the process will be evaluated by comparing the cost of recovering WMC with the cost of normal production of the same materials from natural feedstocks and with the market prices of the recovered materials. The environmental impact of recovering critical materials from WMC through LCA is evaluated by comparing the impact of the process to the impact of producing those materials from natural feedstocks. The assessment is made not only in terms of greenhouse gas emissions, but also in terms of other categories of environmental impacts. These categories include abiotic resource depletion, human toxicity, eutrophication, environmental acidification, photochemical oxidant formation, ozone depletion, and others. Since the prices of critical materials and the categories of environmental impacts caused by their production always transcend a single country, these assessments definitely have a transnational value.		
O 3.1	Joint Program for the Improvement of Waste Management Systems in BSR countries and regions	This joint program will cover the entire BSR and determine its transnational character. This joint program will serve to find the place of WMC in the BSR waste management systems, with subsequent development of the circular economy and reduction of greenhouse gas emissions. The program will consist of: - initial improvement of the system for collection of waste from residents and businesses with the aim of facilitating separate collection of VMC; - system for extraction of VMC from the collected waste stream using known waste separation technologies; - potential BSR companies capable of carrying out an activity for extraction of VMC from the entire waste stream; - potential BSR companies capable of carrying out an activity for recovery of materials from VMC and processing of these materials into products. Examples of such companies in Lithuania could be the waste collection and transportation company UAB "Kauno švara", the plastics company UAB "Plasta" and the electronic waste recycling company UAB "EMP Recycling".		
D 3.2	Deliverable report containing the list of knowledge and competences for in waste management systems	Partners will develop a waste management and recycling competency roadmap that includes the knowledge and skills required for MSMEs. The competency roadmap will have a graphical form. Information on knowledge and skills will be drawn from existing literature and from companies interested in the topic from the partners' regions.	This deliverable will contribute to the output of WP3.	

D 3.3	Apprenticeship standard for waste management systems in BSR countries/regions	The waste management and recycling education standard for MSME employees is necessary to activate mechanisms that allow companies (especially MSMEs) to build human capital and awareness of the benefits of today's transformation.	This deliverable will contribute to the output of WP3.	
D 3.4	Deliverable report containing a readiness assessment tool in waste management systems	The self-diagnostic tool is directly related to the review of competencies of MSME employees in the field of waste management. The self-diagnosis tool is used in advance to know how much the company / employees need to learn to be competent enough in this area.	This deliverable will contribute to the output of WP3.	

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 1 - Kaunas University of Technology

Work package leader 2 PP 4 - Lappeenranta-Lahti University of Technology

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	National public authority The national authorities as target groups would be the ministries of environment and economy of all project partner countries such as Lithuania, Estonia, Latvia, Finland, Sweden and Poland. 191 / 500 characters	During WP1, the project partners from Lithuania, Latvia, Estonia, Finland, Sweden and Poland will be in regular contact with the departments of the national Ministries of Environment and Economy responsible for waste management and sustainable development. For this purpose, a series of meetings will be held to present the tasks and results of the project, to hear the opinions and views of colleagues from these institutions, and to take into account the comments and recommendations that will lead to partial corrections of the project work. These authorities will be asked to provide available information on national indicators of waste management system and recovery situation for valuable recyclable materials from different waste categories. It will be possible to communicate both by contact and remotely. 815 / 1,000 characters
2	Regional public authority The national authorities as target groups would be the ministries of environment and economy of all German states belonging to BSR, such as Schleswig-Holstein, Hamburg, Mecklenburg Vorpommern, Branderburg and Berlin. 217 / 500 characters	During WP1, the German project partner will be in regular contact with the departments of the Federal Ministries of Environment and Economy (for Schleswig-Holstein, Hamburg, Mecklenburg Vorpommern, Brandenburg and Berlin) responsible for waste management and sustainable development. For this purpose, a series of meetings will be held to present the tasks and results of the project, to hear the opinions and views of colleagues from these institutions, and to consider the comments and recommendations that will lead to partial corrections of the project work. These authorities will be asked to provide available information on national indicators of waste management system and recovery situation for valuable recyclable materials from different waste categories. It will be possible to communicate both by contact and remotely. 832 / 1,000 characters

	Target group	How do you plan to reach out to and engage the target group?
3	Infrastructure and public service provider These target groups are public institutions and/or private companies whose task is the regional coordination of waste management. Following the Lithuanian model, these can be regional waste management centers managed by municipalities and waste management companies. 266 / 500 characters	During WP1 there will be regular contacts with infrastructures and public services, large enterprises and small and medium enterprises whose activities are related to, or may have a perspective for, the recovery of valuable materials from waste and the use of these recovered materials in the production process of various goods. These could be: a) services for collection, transportation and preparation for recycling or treatment of waste; b) large and/or small&medium industrial companies that use or can use recyclable materials. Communication with these companies would help determine if there are principled opportunities to leverage and/or adapt existing infrastructure for converting multi-layer composite waste into recyclable materials and using these materials in production. 789 / 1,000 characters
4	Large enterprise These target groups would be large public and/or private companies (businesses) that carry out activities such as waste collection and sorting or recycling waste into valuable materials on a regional or even national level. Such companies could be, for example, the waste management company "Kauno švara", the plastic products company UAB "Plasta" and the electronic waste treatment company UAB "EMP Recycling". These companies operate in Lithuania. 449 / 500 characters	See the point 4. 16 / 1,000 characters
5	Small and medium enterprise The target groups may also be small and medium-sized enterprises (SMEs) operating in the project partner countries. These SMEs prepare waste for recycling, recover materials, and manufacture certain products for consumption. Such companies for plastic recycling can be, for example, UAB "Retroplast" and UAB "Eco perdirbimas" and others. 338 / 500 characters	See the point 4. 16 / 1,000 characters

5.6 Activities, deliverables, outputs and timeline

No.	Name
1.1	**Overview of Current Situation for Recycling and Recovering in BSR Waste Management Systems**
1.2	**Overview of Previous Researches for WMC Recycling and Materials Recovering**
1.3	**Analysis of Existing Infrastructure for Possible Materials Recovering from WMC in BSR Countries**

WP 1 Group of activities 1.1

5.6.1 Group of activities leader

Group of activities leader PP 1 - Kaunas University of Technology

A 1.1

5.6.2 Title of the group of activities

Overview of Current Situation for Recycling and Recovering in BSR Waste Management Systems

90 / 100 characters

5.6.3 Description of the group of activities

In order to implement the recovery of materials from WMC in the Baltic Sea Region and thus make greater progress in the transition to a circular economy, reduce pollution, develop a waste recovery economy, add value and increase the well-being of the region's population, it is necessary, among other things, to carry out the following activities A.1..1:

- to prepare an overview of the current situation in the field of waste recycling and recovery of valuable materials from waste in the project partner countries/regions and to assess the share of multi-layer composite waste in this field, including packaging, textiles, e-waste and electronic waste.

The content of the prepared overview with the reflected waste recycling situation will be an additional argument strengthening the validity of the project idea. If there is a lack of information, a morphological analysis of some waste (packaging, WEEE, used cars, etc.) will be carried out. And the overview itself should be considered as one of the WP1 deliverables.

A.1.1. will be carried out in close cooperation with the intended associated organizations and target groups in each partner country. The data required for the overview will be collected from the databases of national and regional ministries, as well as from regional organizations such as the regional waste management centers, etc.

A.1.1 would be carried out under WP1 from 1 to 12 months of the project in parallel with A.1.2 and A.1.3. The results obtained will be important for WP2, i.e. for testing and evaluation of solutions.

The group of activities A.1.1 will include all project partners and associated organizations.

1,665 / 3,000 characters

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

D 1.1

Title of the deliverable

Deliverable Report for Waste Recycling and Materials Recovering in BSR Waste Management Systems

95 / 100 characters

Description of the deliverable

This interim report will indeed reflect the overall situation of waste management (municipal waste, industrial waste, etc.) over the last ten years in all countries of BSR EU, including Denmark, which is not participating in the project. In the case of Germany, the information collected will cover the states participating in the program. It will highlight not only the recyclable fraction of the different wastes, but also the materials recovered from them, focusing on packaging, e-waste, textiles and other multilayer composite wastes that require a specific technological process for recycling. The contribution of these wastes to recyclable and non-recyclable waste streams is highlighted.

695 / 2,000 characters

Which output does this deliverable contribute to?

This deliverable will contribute to the outputs of WP3.

55 / 100 characters

5.6.6 Timeline

	Period: 1	2	3	4	5	6
WP.1: WP1 Preparing solutions						
A.1.1: Overview of Current Situation for Recycling and Recovering in BSR Waste Management Systems						
D.1.1: Deliverable Report for Waste Recycling and Materials Recovering in BSR Waste Management Systems						

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 - Hamburg University of Technology

A 1.2

5.6.2 Title of the group of activities

Overview of Previous Researches for WMC Recycling and Materials Recovering

74 / 100 characters

5.6.3 Description of the group of activities

In order to implement the recycling of materials from WMC in the Baltic Sea region and thus make greater progress in the transition to a circular economy, reduce pollution, develop a waste recycling economy, add value and increase the welfare of the region's population, it is necessary, among other things, to carry out such activities A.1.2:

- Prepare an overview of the published results of scientific research and experimental development achieved in the project partners' institutions and other study and research institutions in the partner countries related to the recovery of valuable (critical) materials from WMC, with particular reference to the evaluated economic potential impacts and impacts on the reduction of greenhouse gas emissions and other environmental impacts.

The content of the prepared overview of the research results achieved will be an additional argument that strengthens the validity of the project idea. And the overview itself should be considered as one of the WP1 deliverables.

A.1.2. will be carried out in close cooperation with many research and study institutions in the partner countries. The data needed for the overview will be collected from university libraries, Clarivate Web of Science and Scopus databases, and other similar scientific information sources. Journal articles, conference proceedings, dissertations, and master's theses will serve as sources of information.

A.1.2 will be carried out in WP1 from 1 to 12 months of the project in parallel with A.1.1 and A.1.3.

The obtained results will be the background for WP2, i.e. for testing and evaluation of solutions, initially for development and testing of prototypes for devices for recovery of materials from WMC.

The group of activities A.1.2 will involve all project partners.

1,796 / 3,000 characters

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

D 1.2

Title of the deliverable

Deliverable Report for Research Results in the field of WMC Recycling and Materials Recovering

94 / 100 characters

Description of the deliverable

This report will include a review of various articles in scientific journals and conference proceedings, as well as reports on various projects, dissertations, and master's theses. The main topics are technologies for separation of multilayer composites, separated components and their processing into valuable products, process parameters, process economics, and environmental impact.

385 / 2,000 characters

Which output does this deliverable contribute to?

This deliverable will significantly contribute for outputs obtained in WP2 activities.

86 / 100 characters

5.6.6 Timeline

	Period: 1	2	3	4	5	6
WP.1: WP1 Preparing solutions						
A.1.2: Overview of Previous Researches for WMC Recycling and Materials Recovering						
D.1.2: Deliverable Report for Research Results in the field of WMC Recycling and Materials Recovering						

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 6 - Łukasiewicz Research Network – Institute for Sustainable Technologies

A 1.3

5.6.2 Title of the group of activities

Analysis of Existing Infrastructure for Possible Materials Recovering from WMC in BSR Countries

95 / 100 characters

5.6.3 Description of the group of activities

In order to implement the recovery of materials from WMC in the Baltic Sea Region and thus achieve greater progress in the transition to a circular economy, reduce pollution, develop a waste recovery economy, create added value and increase the well-being of the region's population, it is necessary, among other things, to carry out the following activities A.1.3:
- Assess the activities and infrastructure of enterprises and businesses in the project partner countries or regions that are suitable for converting multi-layer composite waste into recyclable materials and using these materials in the manufacture of products.

The content of the prepared assessment will be the additional indicators of the feasibility of implementing the project idea. And the overview itself should be considered as one of the WP1 deliverables.

A.1.3. will be carried out in close cooperation with many waste management services and industrial enterprises in the partner countries.

A.1.3 will be carried out in WP1 from 1 to 12 months of the project in parallel with A.1.1 and A.1.2.

The results obtained will be relevant for WP2 and WP3, as potential sites for the production of prototypes of equipment for the recovery of materials from WMC and for the design of facilities for this economic activity will become clear.

The group of activities A.1.3 will involve all project partners.

1,383 / 3,000 characters

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

D 1.3

Title of the deliverable

Existing Facilities for Possible Materials Recovering from WMC in BSR Countries: Deliverable Report

99 / 100 characters

Description of the deliverable

This report provides a list of potential companies in BSR countries and regions whose infrastructure would in principle be suitable for recycling, recovery, and further production of WMC products. These may include plastic recycling and production companies, electronic component factories, solar panel factories, textile companies, and WEEE recycling companies. The exact names, types and addresses of small, medium and large enterprises are provided. The cross-country value of this report lies in the potential industrial links between companies in different BSR countries.

576 / 2,000 characters

Which output does this deliverable contribute to?

This deliverable will contribute to the output of WP3

53 / 100 characters

5.6.6 Timeline

	Period: 1	2	3	4	5	6
WP.1: WP1 Preparing solutions						
A.1.3: Analysis of Existing Infrastructure for Possible Materials Recovering from WMC in BSR Countries						
D.1.3: Existing Facilities for Possible Materials Recovering from WMC in BSR Countries: Deliverable Report						

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 1 - Kaunas University of Technology
Work package leader 2	PP 3 - Tallinn University of Technology

5.4 Work package budget

Work package budget	40%

5.4.1 Number of pilots

Number of pilots	4

5.5 Target groups

	Target group	How do you plan to reach out to and engage the target group?
1	National public authority The national authorities as target groups would be the ministries of environment and economy of all project partner countries such as Lithuania, Estonia, Latvia, Finland, Sweden and Poland. 191 / 500 characters	At this stage of the project, when more technical issues will be addressed and work will be focused on research, contacts with these target groups are not important. This will be relevant in the WP3, when, based on the results of this stage, a principle action plan for the recovery of materials from WMC will be developed. 323 / 1,000 characters
2	Regional public authority The national authorities as target groups would be the ministries of environment and economy of all German states belonging to BSR, such as Schleswig-Holstein, Hamburg, Mecklenburg Vorpommern, Branderburg and Berlin. 217 / 500 characters	In principle the same situation like this Target group 1. 57 / 1,000 characters
3	Infrastructure and public service provider These target groups are public institutions and/or private companies whose task is the regional coordination of waste management. Following the Lithuanian model, these can be regional waste management centers managed by municipalities and waste management companies. 266 / 500 characters	The developed prototypes of material recovery devices will be assembled and tested in the facilities of public service companies, large enterprises and SME. This will create the conditions for these companies to use recovery technologies and carry out relevant activities in the future. 286 / 1,000 characters
4	Large enterprise These target groups would be large public and/or private companies (businesses) that carry out activities such as waste collection and sorting or recycling waste into valuable materials on a regional or even national level. Such companies could be, for example, the waste management company "Kauno švara", the plastic products company UAB "Plasta" and the electronic waste treatment company UAB "EMP Recycling". These companies operate in Lithuania. 449 / 500 characters	The developed prototypes of material recovery devices will be assembled and tested in the facilities of public service companies, large enterprises and SME. This will create the conditions for these companies to use recovery technologies and carry out relevant activities in the future. 286 / 1,000 characters
5	Small and medium enterprise The target groups may also be small and medium-sized enterprises (SMEs) operating in the project partner countries. These SMEs prepare waste for recycling, recover materials, and manufacture certain products for consumption. Such companies for plastic recycling can be, for example, UAB "Retroplast" and UAB "Eco perdirbimas" and others. 338 / 500 characters	The developed prototypes of material recovery devices will be assembled and tested in the facilities of public service companies, large enterprises and SME. This will create the conditions for these companies to use recovery technologies and carry out relevant activities in the future. 286 / 1,000 characters

5.6 Activities, deliverables, outputs and timeline

No.	Name
2.1	Additional Required Laboratory Researches Prior to Prototyping of WMC Separation Devices
2.2	Prototypes Development and Testing
2.3	Economic and Environmental Impact Assessment
2.4	Series of meetings with the stakeholders groups

WP 2 Group of activities 2.1

5.6.1 Group of activities leader

Group of activities leader PP 1 - Kaunas University of Technology

A 2.1

5.6.2 Title of the group of activities

Additional Required Laboratory Researches Prior to Prototyping of WMC Separation Devices

88 / 100 characters

5.6.3 Description of the group of activities

In order to implement the recovery of materials from WMC in the Baltic Sea region and thus make greater progress in the transition to a circular economy, reduce pollution, develop a waste-to-energy economy, add value, and increase the well-being of the region's population, it is necessary, among other things, to continue the activities A.2.1.

A review of previous research on the recovery of materials from waste multilayer composites (WMC) will identify potential information gaps related to process efficiency and the generation of process emissions and byproducts. Therefore, some additional laboratory testing for separation and recovery of WMC is required, establishing the required parameters (pH, temperature, ultrasonic levels, etc.) and additional studies on the properties and composition of the recoverable materials and by-products.

Depending on the need, this work will be carried out by the project partners who have achieved specific results in these areas:
a) KTU activities will focus on printed circuit board waste (WPCB), multilayer flexible packaging waste (MFPW), photovoltaic panel waste (WPP), photovoltaic cell waste (WPC), and denim waste (JFW). f Separation methods - physical-chemical by using solvents and acids with ultrasound.
b) The activities of LU are focused on optical sensor wastes (WOP). Separation methods - physical-chemical with ultrasound.
c) TalTech focuses mainly on WMC from waste electrical and electronic equipment and solar panels, etc. Separation methods - mechanical treatment by disintegrators.
d) University activities LUT will also focus on some types of packaging and electronic waste.
e) TUHH activities will focus on various polymer multilayer wastes (PMW). Separation methods - chemical and thermochemical treatment.

A.2.1 will be carried out in WP1 from 13 to 18 months of the project in parallel with A.2.2.

The obtained results will enhance the subsequent prototyping under A.2.2 "Prototype development and testing" and LCA under A.2.3 "Economic and environmental impact assessment". And it should be considered as one of the WP2 deliverables.

2,118 / 3,000 characters

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

D 2.1

Title of the deliverable

Results of Additional Laboratory Researches Prior to Prototyping of WMC Separation

82 / 100 characters

Description of the deliverable

The cross-national value of this report lies in the results of similar studies conducted by the project's partner institutions that answer questions not answered in previous studies described in WP1. This may relate to the regime of the separation processes, the properties of the recovered materials and by-products, and the emissions to the environment caused by the processes.

The outline of the report could be based on the project partner institutions (with the exception of LNU and LRN-IST, which are not planning similar activities) or on the WMC types. The description of each study briefly describes the methodology used and comments on the resulting indicators.

673 / 2,000 characters

Which output does this deliverable contribute to?

This deliverable may contribute to the main output of WP2 - created and tested prototype device.

96 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.2: WP2 Piloting and evaluating solutions						
A.2.1: Additional Required Laboratory Researches Prior to Prototyping of WMC Separation Devices						
D.2.1: Results of Additional Laboratory Researches Prior to Prototyping of WMC Separation						

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 3 - Tallinn University of Technology

A 2.2

5.6.2 Title of the group of activities

Prototypes Development and Testing

34 / 100 characters

5.6.3 Description of the group of activities

The scientific experience of the project partners in the field of recovery of materials from WMC allows at least four pilot actions. These are the development of prototypes of at least three types of equipment for the separation of WMC:
- two universal reactors for the separation of WMC by solvents and acids;
- an ultrasonic reactor for the separation of WOS;
- a mechanical device for the separation of WMC.

The reactors are designed and manufactured by TUHH and TalTech.
Some units of the devices are also developed and manufactured in LU.
Two universal reactors for separation of WMC by solvents and acids are assembled and tested by KTU and TUHH.
The ultrasonic reactor for separation of WOS is assembled and tested by LU.
The mechanical device for separation of WMC will be assembled and tested by TalTech.

The assembly and testing does not necessarily have to be done in the laboratories of the above-mentioned universities, but can also be done in the corresponding organizations that collaborate with these universities. During the tests, the composition and properties of the materials obtained from the VMC and the by-products produced will be studied in the laboratories of these universities.

Thus, the created prototypes and their test results should be considered as the main product of WP2.

This activity would be carried out throughout the WP2 period of 13 to 24 months of the project. The start of the implementation would coincide with the implementation of the first WP2 activity ("Additional required laboratory tests prior to prototyping of WMC separation devices"), and the end with the implementation of the third WP2 activity.

The obtained results will be the background for the start of WP3.

1,731 / 3,000 characters

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

O 2.2

Title of the output

Prototype Devices for WMC Separation and Obtained Products

58 / 100 characters

Description of the output

The assembled and tested prototypes of three reactors for physico-chemical separation of WMC and one device for mechanical separation of WMC will be one of the most important outputs of WP2, as their operation will demonstrate the transferability of WMC separation to industrial scale, improving waste recycling, intensifying the transition to a circular economy throughout the BSR region, and reducing environmental impact. This evidence confirms the transnational value of such a WP2 outcome.

The prototype equipment will include control systems for process parameters (temperature, pH, ultrasonic level, mixing speed, etc.), systems for feeding and discharging materials, and control systems for pollutant emissions.

Prototypes of these devices as WP2 deliverables will be accompanied by samples of materials obtained from WMC with protocols for testing their composition (e.g., elemental composition) and properties (e.g., mechanical properties). These may be various polymers, resins, glass in the form of fibers and scrap, various metals (Si, Cu, Al, Pb, Au, Ag, etc.) in the form of powders and oxides, and other valuable (critical) materials.

1,154 / 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 These target groups are public institutions and/or private companies whose task is the regional coordination of waste management. Following the Lithuanian model, these can be regional waste management centers managed by municipalities and waste management companies.	This O2.2 output in the form of WMC prototype separation devices and primary products would be important for infrastructure and public service providers, large enterprises and SMEs which have the principle possibilities to develop materials recovering from WMC and further processing of these materials to products. 318 / 1,000 characters
Target group 2 Large enterprise These target groups would be large public and/or private companies (businesses) that carry out activities such as waste collection and sorting or recycling waste into valuable materials on a regional or even national level. Such companies could be, for example, the waste management company "Kauno švara", the plastic products company UAB "Plasta" and the electronic waste treatment company UAB "EMP Recycling". These companies operate in Lithuania.	The same like for Target group 1. 33 / 1,000 characters
Target group 3 Small and medium enterprise The target groups may also be small and medium-sized enterprises (SMEs) operating in the project partner countries. These SMEs prepare waste for recycling, recover materials, and manufacture certain products for consumption. Such companies for plastic recycling can be, for example, UAB "Retroplast" and UAB "Eco perdirbimas" and others.	The same like for Target group 1. 33 / 1,000 characters

Durability of the output

Institutional and financial support to achieve the results of this phase will be needed for the remuneration of project staff, purchasing of equipment and consumables.
For designing and manufacturing of prototype devices will be responsible TalTech, TUHH and particurlary LU. All this partners and KTU will perform assembling and testing of four prototype devices.

367 / 1,000 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.2: WP2 Piloting and evaluating solutions						
A.2.2: Prototypes Development and Testing						
O.2.2: Prototype Devices for WMC Separation and Obtained Products						

5.6.7 This deliverable/output contains productive or infrastructure investment

WP 2 Group of activities 2.3

5.6.1 Group of activities leader

Group of activities leader PP 4 - Lappeenranta-Lahti University of Technology

A 2.3

5.6.2 Title of the group of activities

Economic and Environmental Impact Assessment

44 / 100 characters

5.6.3 Description of the group of activities

In order to implement the recycling of materials from WMC in the Baltic Sea Region and thus make greater progress in the transition to a circular economy, reduce pollution, develop a waste recycling economy, create added value, and increase the well-being of the region's population, it is necessary, among other things, to carry out the activities A.2.3.

An environmental impact assessment will be carried out to demonstrate the potential of the technologies developed to reduce the environmental impact of the waste management and recycling system. The method used is life cycle assessment (LCA).

In addition to the assessment perspective, the results of LCA can also be used to further develop the technology solutions if the main factors (process units, materials, performances) of environmental impacts are identified and quantified. Thus, the preliminary results from LCA can help make treatment and separation technologies even more sustainable.

The final environmental performance of each technology solution will be determined based on the technical performance results of the pilot tests.

In addition, the economic cost-benefit analysis for the developed processes will be conducted to compare them with the conventional treatment processes. The economic analysis can also help to further improve the developed solutions to make them competitive with existing technologies.

These activities will be carried out by the project partners L- TEE, LUT College, LNU and TUHH. Each of these partners will evaluate a developed device prototype. These evaluations will pave the way for the implementation of material recovery activities in BSR's waste management systems. This activity will be carried out in parallel with the first and second WP2 activities throughout the WP2 period of 13 to 24 months of the project.

The results obtained will be the background for the start of WP3 "Transfer of solutions". Thus, the results of the economic evaluation and environmental impact assessment can also be considered as the main product of WP2.

2,054 / 3,000 characters

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

O 2.3

Title of the output

Profitability and Environmental Impact of Materials Recovering from WMC

71 / 100 characters

Description of the output

Both the economic and environmental evaluation will be based on the results of the tests of the prototype plant and the recyclables obtained from it.

The cost-effectiveness of the process will be evaluated by comparing the cost of recovering WMC with the cost of normal production of the same materials from natural feedstocks and with the market prices of the recovered materials. The environmental impact of recovering critical materials from WMC through LCA is evaluated by comparing the impact of the process to the impact of producing those materials from natural feedstocks.

The assessment is made not only in terms of greenhouse gas emissions, but also in terms of other categories of environmental impacts. These categories include abiotic resource depletion, human toxicity, eutrophication, environmental acidification, photochemical oxidant formation, ozone depletion, and others.

Since the prices of critical materials and the categories of environmental impacts caused by their production always transcend a single country, these assessments definitely have a transnational value.

1,098 / 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 National public authority The national authorities as target groups would be the ministries of environment and economy of all project partner countries such as Lithuania, Estonia, Latvia, Finland, Sweden and Poland.	For the national Ministries of Environment and Economy of the BSR countries, these economic and environmental assessments of the recovery of critical materials from WMC will be of great help in planning the sustainable development of the countries' economies, the improvement of the waste management system and the reduction of negative environmental impacts. 359 / 1,000 characters
Target group 2 Regional public authority The national authorities as target groups would be the ministries of environment and economy of all German states belonging to BSR, such as Schleswig-Holstein, Hamburg, Mecklenburg Vorpommern, Branderburg and Berlin.	For regional Ministries of Environment and Economy of all German Länder belonging to BSR, in principle this output has the same importance like in the case Target group 1. 171 / 1,000 characters
Target group 3 Infrastructure and public service provider These target groups are public institutions and/or private companies whose task is the regional coordination of waste management. Following the Lithuanian model, these can be regional waste management centers managed by municipalities and waste management companies.	For BSR companies (infrastructure and public service providers, large enterprises and SMS) that will include the recovery of critical materials from WMC in their activities, these assessments will be critical in the preparation of business plans and environmental impact assessments of planned activities. 305 / 1,000 characters
Target group 4 Large enterprise These target groups would be large public and/or private companies (businesses) that carry out activities such as waste collection and sorting or recycling waste into valuable materials on a regional or even national level. Such companies could be, for example, the waste management company "Kauno švara", the plastic products company UAB "Plasta" and the electronic waste treatment company UAB "EMP Recycling". These companies operate in Lithuania.	The same like for Target group 3. 33 / 1,000 characters
Target group 5 Small and medium enterprise The target groups may also be small and medium-sized enterprises (SMEs) operating in the project partner countries. These SMEs prepare waste for recycling, recover materials, and manufacture certain products for consumption. Such companies for plastic recycling can be, for example, UAB "Retroplast" and UAB "Eco perdirbimas" and others.	The same like for Target groups 3 and 4. 40 / 1,000 characters

Durability of the output

After the end of the project, this output will remain as a possible support for further planning of economic activities at national and regional levels and as a guide for many new business plans and environmental impact assessments for many private and public companies.

The main role in this output will be played by the University LUT, the LNU, the TUHH and the L-ITEE, as they will act as evaluators due to their experience and competence. The role of the other partners will be based on the results obtained in the implementation of previous project activities.

567 / 1,000 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.2: WP2 Piloting and evaluating solutions						
A.2.3: Economic and Environmental Impact Assessment						
O.2.3: Profitability and Environmental Impact of Materials Recovering from WMC						

5.6.7 This deliverable/output contains productive or infrastructure investment ☐

WP 2 Group of activities 2.4

5.6.1 Group of activities leader

Group of activities leader PP 6 - Łukasiewicz Research Network – Institute for Sustainable Technologies

A 2.4

5.6.2 Title of the group of activities

Series of meetings with the stakeholders groups

47 / 100 characters

5.6.3 Description of the group of activities

The objective of the stakeholder meetings is to identify key issues related to waste management systems in BSR countries/regions. Based on the discussions on the products achieved in WP1 and WP2, the target groups will identify the most important elements to be included in the joint educational programme in the field of waste management systems. In addition, feedback from the meetings will inform the development of the competency map, readiness test and training standard for waste management staff in BSR countries/regions.

528 / 3,000 characters

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

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.2: WP2 Piloting and evaluating solutions						
A.2.4: Series of meetings with the stakeholders groups						

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 6 - Łukasiewicz Research Network – Institute for Sustainable Technologies

Work package leader 2 PP 1 - Kaunas University of Technology

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	National public authority The national authorities as target groups would be the ministries of environment and economy of all project partner countries such as Lithuania, Estonia, Latvia, Finland, Sweden and Poland. 191 / 500 characters	The target groups will be actively engaged in the development of the proposed materials focused on waste management systems in partner regions. All foreseen actions will be targeting different groups of stakeholders. 217 / 1,000 characters
2	Regional public authority The national authorities as target groups would be the ministries of environment and economy of all German states belonging to BSR, such as Schleswig-Holstein, Hamburg, Mecklenburg Vorpommern, Branderburg and Berlin. 217 / 500 characters	The target groups will be actively engaged in the development of the proposed materials focused on waste management systems in partner regions. All foreseen actions will be targeting different groups of stakeholders. 217 / 1,000 characters
3	Infrastructure and public service provider These target groups are public institutions and/or private companies whose task is the regional coordination of waste management. Following the Lithuanian model, these can be regional waste management centers managed by municipalities and waste management companies. 266 / 500 characters	The target groups will be actively engaged in the development of the proposed materials focused on waste management systems in partner regions. All foreseen actions will be targeting different groups of stakeholders. 217 / 1,000 characters
4	Large enterprise These target groups would be large public and/or private companies (businesses) that carry out activities such as waste collection and sorting or recycling waste into valuable materials on a regional or even national level. Such companies could be, for example, the waste management company "Kauno švara", the plastic products company UAB "Plasta" and the electronic waste treatment company UAB "EMP Recycling". These companies operate in Lithuania. 449 / 500 characters	These large enterprises prepare waste for recycling, recover materials and produce specific products for consumption. Such enterprises e.g. for waste collection and transportation UAB "Kauno švara", for plastic recycling can be UAB "Plasta", for electronic waste treatment UAB "EMP Recycling" and UAB "Eco perdirbimas" and other. 330 / 1,000 characters
5	Small and medium enterprise The target groups may also be small and medium-sized enterprises (SMEs) operating in the project partner countries. These SMEs prepare waste for recycling, recover materials, and manufacture certain products for consumption. Such companies for plastic recycling can be, for example, UAB "Retroplast" and UAB "Eco perdirbimas" and others. 338 / 500 characters	These SME prepare waste for recycling, recover materials and produce specific products for consumption. Such enterprises e.g. for plastic recycling can be UAB "Retroplast" and UAB "Eco perdirbimas" and other. 208 / 1,000 characters

5.6 Activities, deliverables, outputs and timeline

No.	Name
3.1	**Preparation of Joint Program for the Improvement of Waste Management Systems in BSR**
3.2	**Competence roadmap in the area of waste management systems in BSR countries/regions**
3.3	**Apprenticeship standard for waste management systems in BSR countries/regions**
3.4	**A readiness assessment tool in waste management systems in BSR countries/regions**

WP 3 Group of activities 3.1

5.6.1 Group of activities leader

Group of activities leader PP 1 - Kaunas University of Technology

A 3.1

5.6.2 Title of the group of activities

Preparation of Joint Program for the Improvement of Waste Management Systems in BSR

84 / 100 characters

5.6.3 Description of the group of activities

Based on the results achieved in WP1 and WP2, the joint program for the improvement of waste management systems in the project partner countries/regions will be elaborated. Substantial improvements to the waste management systems will be focused on the collection and recycling of multi-layer composite waste. As separate collection of multi-layer flexible packaging from inhabitants is practically not possible, the extraction of this packaging from the separately collected plastic waste stream by use of manual and optical methods will be proposed.
Changes to the WEEE management system collected from inhabitants and companies will also be proposed. Companies handling this waste will be offered changes to the dismantling of WEEE by extraction of WPCB, WOS and used photovoltaic cells.
A network of companies in the Baltic Sea region will also be envisaged, using the technologies developed in the project for the conversion of WMC into valuable materials and the processing of these materials into products.
Each project partner will be an active participant in this activity, as it will be responsible for anticipating of WMC management opportunities in their country / region.

1,186 / 3,000 characters

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

O 3.1

Title of the output

Joint Program for the Improvement of Waste Management Systems in BSR countries and regions

90 / 100 characters

Description of the output

This joint program will cover the entire BSR and determine its transnational character.
This joint program will serve to find the place of WMC in the BSR waste management systems, with subsequent development of the circular economy and reduction of greenhouse gas emissions.
The program will consist of:
- initial improvement of the system for collection of waste from residents and businesses with the aim of facilitating separate collection of VMC;
- system for extraction of VMC from the collected waste stream using known waste separation technologies;
- potential BSR companies capable of carrying out an activity for extraction of VMC from the entire waste stream;
- potential BSR companies capable of carrying out an activity for recovery of materials from VMC and processing of these materials into products.
Examples of such companies in Lithuania could be the waste collection and transportation company UAB "Kauno švara", the plastics company UAB "Plasta" and the electronic waste recycling company UAB "EMP Recycling".

1,038 / 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 National public authority The national authorities as target groups would be the ministries of environment and economy of all project partner countries such as Lithuania, Estonia, Latvia, Finland, Sweden and Poland.	The program will assist national Ministries of Environment and Economics in planning and monitoring the further sustainable development of waste management systems. 164 / 1,000 characters

Target groups	How will this target group apply the output in its daily work?
Target group 2 Regional public authority The national authorities as target groups would be the ministries of environment and economy of all German states belonging to BSR, such as Schleswig-Holstein, Hamburg, Mecklenburg Vorpommern, Branderburg and Berlin.	The program will assist some federal Ministries of Environment and Economics of German states belonging to BSR, such as Schleswig-Holstein, Hamburg, Mecklenburg Vorpommern, Branderburg and Berlin, in planning and monitoring the further sustainable development of waste management systems. 289 / 1,000 characters
Target group 3 Infrastructure and public service provider These target groups are public institutions and/or private companies whose task is the regional coordination of waste management. Following the Lithuanian model, these can be regional waste management centers managed by municipalities and waste management companies.	The program will assist public institutions and/or private companies whose task is the regional coordination of waste management in planning and monitoring the further sustainable development of waste management systems. 220 / 1,000 characters
Target group 4 Large enterprise These target groups would be large public and/or private companies (businesses) that carry out activities such as waste collection and sorting or recycling waste into valuable materials on a regional or even national level. Such companies could be, for example, the waste management company "Kauno švara", the plastic products company UAB "Plasta" and the electronic waste treatment company UAB "EMP Recycling". These companies operate in Lithuania.	This program will help existing or emerging companies like larger enterprises and SME to find their place in the waste management system and to carry out sustainable and less investment-intensive production and service activities. 230 / 1,000 characters
Target group 5 Small and medium enterprise The target groups may also be small and medium-sized enterprises (SMEs) operating in the project partner countries. These SMEs prepare waste for recycling, recover materials, and manufacture certain products for consumption. Such companies for plastic recycling can be, for example, UAB "Retroplast" and UAB "Eco perdirbimas" and others.	See target group 4. 19 / 1,000 characters

Durability of the output

The framework of this program will be available for a sufficiently long period after the end of the project, as this is when the implementation of the project idea in the BSR countries and regions should intensify.
The responsibilities and roles of all project partners in this activity will be the same, as each partner will assess the capabilities of their country or region.

377 / 1,000 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.3: WP3 Transferring solutions						
A.3.1: Preparation of Joint Program for the Improvement of Waste Management Systems in BSR						
O.3.1: Joint Program for the Improvement of Waste Management Systems in BSR countries and regions						

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 6 - Łukasiewicz Research Network – Institute for Sustainable Technologies

A 3.2

5.6.2 Title of the group of activities

Competence roadmap in the area of waste management systems in BSR countries/regions

83 / 100 characters

5.6.3 Description of the group of activities

Improving the recovery of critical materials such as polymers, metals, and silicates and returning them to the production cycle to reduce environmental impact is critical in today's economy. This sets the stage for environmentally and socially responsible business opportunities in the waste management systems of BSR's partner countries. To achieve this, staff in the various organizations need to be trained on how to do this and what skills are required to deal with such activities. In particular, management personnel should know what competencies are required of staff in order to work properly with the proposed materials. If they are not competent enough, it is necessary to propose a structure of a standard with the required knowledge and competences that can be used in the activities of the organizations dealing with this problem.

Activity 3.2 aims to develop a competency roadmap in the field of waste management and recycling. The competency map will contain the knowledge and skills needed in the waste management environment in selected regions. The competency map will be used by MSMEs in specific industries, as well as the region's smart specializations and locations that impact the accumulation of such industries. The map will contain the competencies required at different levels of the company (executives, managers, and employees). It will be used to identify the demand for the required expertise and skills, regardless of the type or activity of the company.

1,488 / 3,000 characters

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

D 3.2

Title of the deliverable

Deliverable report containing the list of knowledge and competences for in waste management systems

99 / 100 characters

Description of the deliverable

Partners will develop a waste management and recycling competency roadmap that includes the knowledge and skills required for MSMEs. The competency roadmap will have a graphical form. Information on knowledge and skills will be drawn from existing literature and from companies interested in the topic from the partners' regions.

329 / 2,000 characters

Which output does this deliverable contribute to?

This deliverable will contribute to the output of WP3.

54 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.3: WP3 Transferring solutions						
A.3.2: Competence roadmap in the area of waste management systems in BSR countries/regions					■	■
D.3.2: Deliverable report containing the list of knowledge and competences for in waste management systems						■

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 6 - Łukasiewicz Research Network – Institute for Sustainable Technologies

A 3.3

5.6.2 Title of the group of activities

Apprenticeship standard for waste management systems in BSR countries/regions

77 / 100 characters

5.6.3 Description of the group of activities

The training standard will contain the information that should be provided by companies for their employees in the field of waste management and recycling. The training standard will contain all the formal rules associated with the creation of such a teaching tool. The standard will be the basis for teaching in companies, but can also serve as a basis for teaching in other institutions such as universities or vocational schools.

432 / 3,000 characters

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

D 3.3

Title of the deliverable

Apprenticeship standard for waste management systems in BSR countries/regions

77 / 100 characters

Description of the deliverable

The waste management and recycling education standard for MSME employees is necessary to activate mechanisms that allow companies (especially MSMEs) to build human capital and awareness of the benefits of today's transformation.

228 / 2,000 characters

Which output does this deliverable contribute to?

This deliverable will contribute to the output of WP3.

54 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.3: WP3 Transferring solutions						
A.3.3: Apprenticeship standard for waste management systems in BSR countries/regions					■	■
D.3.3: Apprenticeship standard for waste management systems in BSR countries/regions						■

5.6.7 This deliverable/output contains productive or infrastructure investment ☐

WP 3 Group of activities 3.4

5.6.1 Group of activities leader

Group of activities leader PP 6 - Łukasiewicz Research Network – Institute for Sustainable Technologies

A 3.4

5.6.2 Title of the group of activities

A readiness assessment tool in waste management systems in BSR countries/regions

80 / 100 characters

5.6.3 Description of the group of activities

A readiness assessment tool (a self-diagnostic test) in the area covered by the project - the self-diagnostic tool is directly related to the verification of the competencies of MSMEs' employees in the area of waste management. A tool will allow companies to identify the competence needs of MSME employees in terms of knowledge and skills of current employees. The self-diagnostic test can also assist business owners in hiring employees and building professional development paths for new employees.

501 / 3,000 characters

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

D 3.4

Title of the deliverable

Deliverable report containing a readiness assessment tool in waste management systems

86 / 100 characters

Description of the deliverable

The self-diagnostic tool is directly related to the review of competencies of MSME employees in the field of waste management. The self-diagnosis tool is used in advance to know how much the company / employees need to learn to be competent enough in this area.

261 / 2,000 characters

Which output does this deliverable contribute to?

This deliverable will contribute to the output of WP3.

54 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.3: WP3 Transferring solutions						
A.3.4: A readiness assessment tool in waste management systems in BSR countries/regions					■	■
D.3.4: Deliverable report containing a readiness assessment tool in waste management systems						■

5.6.7 This deliverable/output contains productive or infrastructure investment ☐

6. Indicators

Indicators

Output indicators

Output indicators	Total target value in number	Project outputs	Please explain how the solution presented in this output serves the target group(s).
RCO 84 – Pilot actions developed jointly and implemented in projects	4	N/A	N/A
RCO 116 – Jointly developed solutions	3	O.2.2: Prototype Devices for WMC Separation and Obtained Products	WMC prototypes of separation equipment and primary products would be important for infrastructure and public service providers, large enterprises, and SMEs, which in principle have the opportunity to develop recovery of materials from WMC and further processing of these materials into products. 295 / 1,000 characters
		O.2.3: Profitability and Environmental Impact of Materials Recovering from WMC	For the national and regional ministries of environment and economy in the BSR countries, the economic and environmental assessments of recovering critical materials from WMC will be of great help in planning the sustainable development of the countries' economies, improving the waste management system, and reducing negative environmental impacts. For the companies in BSR countries (infrastructure and public service providers, large enterprises, and SMSs) that include recovery of critical materials from WMC in their activities, these assessments will be critical in preparing business plans and environmental impact assessments of planned activities. 656 / 1,000 characters

Result indicators

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.
RCR 104 - Solutions taken up or up-scaled by organisations	3	As the project will be carried out in close and constant collaboration with the target groups of the project, any solution developed in this project will be coordinated with them and will lead to an appropriate final solution that will benefit the countries and regions of the BSR. 281 / 2,000 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: Joint Program for the Improvement of Waste Management Systems in BSR countries and regions	The program will assist national ministries of the environment and economy in planning and monitoring the continued sustainable development of waste management systems. In addition, this program will help existing or emerging businesses, such as larger companies and SMEs, find their place in the waste management system and carry out sustainable and less investment-intensive production and service activities. 412 / 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**	41	Project partners and associated organisations	The project will be implemented by research teams from seven universities in the BSR region countries - Lithuania, Latvia, Estonia, Finland, Sweden, Poland and Germany. These groups works in the fields of environment and management, including waste management, resource recovery and environmental policy. These research groups work closely with the project's target groups, such as the Ministry of the Environment and the Economy, organizations coordinating regional waste management activities, and companies involved in waste collection and recycling. Participation of these partners in the projects will increase the scientific potential in the field of waste multilayer composites management and treatment. Two Lithuanian and two Polish representatives will be involved to project as associated organizations. From Lithuanian side participating regional waste management center and waste collection and transportation company will be able to increase the efficiency of their operations. From Polish side participating business support organizations during the project will gain more experience in integrating of recycling into economic activities. These organizations will share their obtained experiences with similar organizations in other BSR countries. 1,265 / 1,500 characters
				Other organisations	Other organizations representing the project's target groups will include the national and regional Ministries of Environment and Regional Affairs of the project countries, as well as other regional organizations coordinating waste management activities. The results of the project will provide them with an additional tool for coordinating sustainable waste management policies and sustainable economic activities. The target groups of the project will also be represented by companies involved in waste management, recovery of useful materials from waste and recycling of these materials into products. The use of the project results in these companies will allow them to increase the sustainability of their activities and bring it more closer to the principles of the circular economy. 790 / 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	Kaunas University of Technology	Active 22/09/2022	132,000.00	19,800.00	19,800.00
2 - PP	University of Latvia	Active 22/09/2022	123,800.00	18,570.00	18,570.00
3 - PP	Tallinn University of Technology	Active 22/09/2022	149,640.00	22,446.00	22,446.00
4 - PP	Lappeenranta-Lahti University of Technology	Active 22/09/2022	163,000.00	24,450.00	24,450.00
5 - PP	Linnaeus University	Active 22/09/2022	180,000.00	27,000.00	27,000.00
6 - PP	Łukasiewicz Research Network – Institute for Sustainable Technologies	Active 22/09/2022	124,000.00	18,600.00	18,600.00
7 - PP	Hamburg University of Technology	Active 22/09/2022	152,000.00	22,800.00	22,800.00
Total			1,024,440.00	153,666.00	153,666.00

No. & role	Partner name	CAT4 - External expertise & services	CAT5 - Equipment	Total partner budget
1 - LP	Kaunas University of Technology	8,900.00	25,000.00	205,500.00
2 - PP	University of Latvia	0.00	20,000.00	180,940.00
3 - PP	Tallinn University of Technology	3,500.00	18,000.00	216,032.00
4 - PP	Lappeenranta-Lahti University of Technology	0.00	0.00	211,900.00
5 - PP	Linnaeus University	0.00	0.00	234,000.00
6 - PP	Łukasiewicz Research Network – Institute for Sustainable Technologies	9,000.00	0.00	170,200.00
7 - PP	Hamburg University of Technology	4,000.00	20,000.00	221,600.00
Total		25,400.00	83,000.00	1,440,172.00

7.1.1 External expertise and services

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value	
6. Łukasiewicz Res	Events/meetings	CAT4-PP6-A-0	Travel costs of external experts and associated partners to project meetings 76 / 100 characters	No	N/A	6,000.00	
6. Łukasiewicz Res	Events/meetings	CAT4-PP6-A-0	External costs for organisation of meetings and trainings 57 / 100 characters	No	3.4	3,000.00	
3. Tallinn Universitv	Events/meetings	CAT4-PP3-A-0	Organization and implementation of events or meetings. At least two events and meeting. 87 / 100 characters	No	2.2	2,000.00	
3. Tallinn Universitv	Events/meetings	CAT4-PP3-A-0	Participation in events (registration fees). At least two high level international conferences. 96 / 100 characters	No	2.2	1,500.00	
1. Kaunas Universit	Events/meetings	CAT4-PP1-A-0	Organization and participation in events (organization costs, registration fees) 80 / 100 characters	No	N/A	2,900.00	
1. Kaunas Universit	National control	CAT4-PP1-F-0	External audit costs 20 / 100 characters	No	N/A	6,000.00	
7. Hamburg Univers	Events/meetings	CAT4-PP7-A-0	Participation in events (registration fees). At least two high level international conferences. 97 / 100 characters	No	N/A	4,000.00	
	Total					25,400.00	

7.1.2 Equipment

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value	
1. Kaunas Universit	Office equipment	CAT5-PP1-A-0	Refurbished Sharp MX-4070N A3 A4 Color Laser Multifunction Printer - 40ppm, Copy, Print, Scan 93 / 100 characters	No	N/A	4,500.00	
3. Tallinn University	Laboratory equipmen	CAT5-PP3-D-0	Partial coverage of XRF and/or FT-IR device for precise characterization of recycled materials 94 / 100 characters	No	1.3 2.1 2.2 3.1 3.2 3.3	10,000.00	
2. University of Latv	Laboratory equipmen	CAT5-PP2-D-0	Optical, mechanical and electronic components and modules, glassware, chemicals, consumables 94 / 100 characters	No	2.1	20,000.00	
1. Kaunas Universit	Laboratory equipmen	CAT5-PP1-D-0	Reactor, optical, mechanical and electronic components and modules, chemicals, consumables 92 / 100 characters	No	2.1 2.2	20,000.00	
3. Tallinn University	Other specific equip	CAT5-PP3-H-0	Consumables/materials for production of prototypes, spare parts for characterization equipment, etc. 100 / 100 characters	No	2.2	8,000.00	
7. Hamburg Univers	Laboratory equipmen	CAT5-PP7-D-0	Consumables/materials for production of prototypes, spare parts for characterization equipment, etc. 100 / 100 characters	No	1.2	20,000.00	
1. Kaunas Universit	IT hardware and soft	CAT5-PP1-B-0	Statistical data processing program 35 / 100 characters	No	2.1	500.00	
	Total					83,000.00	

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	Kaunas University of Technology	Active 22/09/2022	LT	ERDF	80.00 %	205,500.00	164,400.00	41,100.00	For each partner, the State aid relevance and applied aid measure are defined in the **State aid section**
2-PP	University of Latvia	Active 22/09/2022	LV	ERDF	80.00 %	180,940.00	144,752.00	36,188.00	
3-PP	Tallinn University of Technology	Active 22/09/2022	EE	ERDF	80.00 %	216,032.00	172,825.60	43,206.40	
4-PP	Lappeenranta-Lahti University of Technology	Active 22/09/2022	FI	ERDF	80.00 %	211,900.00	169,520.00	42,380.00	
5-PP	Linnaeus University	Active 22/09/2022	SE	ERDF	80.00 %	234,000.00	187,200.00	46,800.00	
6-PP	Łukasiewicz Research Network – Institute for Sustainable Technologies	Active 22/09/2022	PL	ERDF	80.00 %	170,200.00	136,160.00	34,040.00	
7-PP	Hamburg University of Technology	Active 22/09/2022	DE	ERDF	80.00 %	221,600.00	177,280.00	44,320.00	
Total ERDF						1,440,172.00	1,152,137.60	288,034.40	
Total						1,440,172.00	1,152,137.60	288,034.40	

7.3 Spending plan per reporting period

	EU partners (ERDF)		Total	
	Total	Programme co-financing	Total	Programme co-financing
Period 1	226,195.33	180,956.28	226,195.33	180,956.28
Period 2	226,195.33	180,956.26	226,195.33	180,956.26
Period 3	309,195.33	247,356.26	309,195.33	247,356.26
Period 4	226,195.33	180,956.26	226,195.33	180,956.26
Period 5	226,195.33	180,956.26	226,195.33	180,956.26
Period 6	226,195.35	180,956.28	226,195.35	180,956.28
Total	1,440,172.00	1,152,137.60	1,440,172.00	1,152,137.60