1. Identification

Call	Date of submission
C1	26/04/2022

1.1. Full name of the project

Prevention and Mitigation of Waste Fires and its Consequences

61 / 250 characters

1.2. Short name of the project

RAROG

5 / 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 core aims of project are to develop: (a). Baltic Sea Region (BSR) perspective of waste fires; (b). innovative solutions for detection & prevention of waste fires in early development stages, and (c). environmental friendly extinguishing practices. Literature shows that waste fire incidents at all stages of whole waste management chain has tremendously increased in the past decade in Baltic Sea Region (BSR) and is a source of concern e.g. for municipalities, waste management companies, waste to energy plants, rescue services, environmental authorities, and public. Statistics collected by some project partners shows that the underlying causes of about half of waste fire incidents are not known today, and for several BSR countries, even data of waste statistics is missing. Secondly, using the today's technology (IR cameras, gas sensors, handheld devices etc.), it is impossible to make an early detection of smoldering fires in heaps. Due to poor scientific knowledge, currently there is a vacuum of regulations on safe storage of waste and bio-fuels in the BSR. Project intends to bridge these knowledge gaps and to develop best management practices (BMPs) for waste sector in BSR. A transnational approach shall help in avoiding waste fire through process- and system level measurements, and innovative solutions for early detection (through advance geophysical techniques i.e. magnetometry, electromagnetic, gravimetric, seismic, etc.) and extinction of fire shall be developed.

1,496 / 1,500 characters

1.8. Summary of the partnership

The project partners (PPs) are representing 4 Baltic Sea states (Poland, Latvia, Lithuania & Sweden). Four universities (Linnaeus (LNU) & Lund university from Sweden, AGH university & The Main School of Fire Service SGSP from Poland) are participating in the project. The LNU is the main applicant and shall be responsible for all project deliverables, shall perform the overall project management and shall be involved in all work packages together with other project partners. Project goals match with the competences and resources that are available at different project partners. Specialized facilities to do fire tests (fire test halls) are available at Lund university Sweden & SGSP Poland, and they shall be involved in conducting the laboratory tests together with the support of LNU and AGH. All the PPs have experience of working within the domain of waste management and fire safety.

To correctly plan and implement the project activities in different work packages and to spread out the information to all stakeholders in the BSR, additional partners, like, waste companies & national waste management associations (NWMAs), and municipalities are necessary. Latvian waste management association that holds a close collaboration with waste management companies at national level and have a transnational network with NWMAs of other BSR countries is participating in this project. A waste management company (Eko Odzysk Polska) and a waste to energy plant (Nybro Energy) are participating as associate partners in the project. Similarly, municipalities have the political knowledge about the challenges related to development and implementation of policy guidelines on safe handling of waste. In that context, Silale & Nybro municipalities are two enthusiastic supporting partners in this project. Further, a compnay "JSC Tauragė Region Waste Management Center" that organizes a regional municipal waste management system in the Taurage region is an associate partner in the project.

The key target groups in the project are: a). waste management companies; b) waste to energy plants; c). regional public authorities e.g. environmental inspection bodies; d) national public authorities e.g. waste management associations & rescue services, e) Higher education & research institutes; and f). business support organization in BSR. A business network organization, "Winning Innovation in Lund AB, Sweden" is participating in this project with a vision to promote new business solutions for fire detection and safe handling of waste and recyclables in BSR. Winne Innovation in Lund AB is a very relevant associate partner as was recently involved in a project, where focus was to see the effect of meteorological parameters on risk of spontaneous fires in bio-fuels. Results are also relevant for industries that handle woody biomass e.g. wood pallets, wood chips, and pulp and paper industry etc.

2,909 / 3,000 characters

1.11. Project Budget Summary

Financial resources [in EUR]		Preparation costs	Planned project budget
ERDF	ERDF co-financing	0.00	965,708.55
	Own contribution ERDF	0.00	241,427.15
	ERDF budget	0.00	1,207,135.70
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	965,708.55
	Total own contribution	0.00	241,427.15
	Total budget	0.00	1,207,135.70

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	Linnaeus University	Linnéuniversitetet	SE	Higher education and research institution	a)	265,835.40 €	Active	22/09/2022
2	PP	Lund University	Lund Universitetet	SE	Higher education and research institution	a)	160,386.90 €	Active	22/09/2022
3	PP	AGH University of Science and Technology	Akademia Górniczo-Hutnicza im. Stanisława Staszica w Krakowie	PL	Higher education and research institution	a)	231,570.14 €	Active	22/09/2022
4	PP	The Main School of Fire Service	Szkoła Główna Służby Pożarniczej	PL	Higher education and research institution	a)	468,743.26 €	Active	22/09/2022
5	PP	Waste Management Association of Latvia	Latvijas Atkritumu saimniecības asociācija	LV	NGO	b)	65,000.00 €	Active	22/09/2022
6	PP	Administration of Silale's district municipality	Šilalės rajono savivaldybės administracija	LT	Local public authority	a)	15,600.00 €	Active	22/09/2022

2.1.2 Associated Organisations

No.	Organisation (English)	Organisation (Original)	Country	Type of Partner
AO 1	Silale's district municipality fire rescue department	Šilalės rajono savivaldybės priešgaisrinė tarnyba	LT	Sectoral agency
AO 2	Winning Innovation in Lund AB	Winning Innovation i Lund AB	SE	Business support organisation
AO 3	JSC Tauragė Region Waste Management Center	UAB Tauragės regiono atliekų tvarkymo centras	LT	Small and medium enterprise
AO 4	Nybro Municipality	Nybro Kommun	SE	Local public authority
AO 5	Nybro Energy	Nybro Energi AB	SE	Small and medium enterprise
AO 6	EKO ODZYSK POLSKA Sp. z o.o.	EKO ODZYSK POLSKA Sp. z o.o.	PL	Small and medium enterprise

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 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 Sciences

48 / 250 characters

Partner location and website:

Address	Stuvaregatan 2 (15 / 250 characters)	**Country**	Sweden
Postal Code	392 31 (7 / 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:

The Linnaeus University (LNU) is the main applicant in this application. LNU shall be responsible for all project deliverables, shall perform the overall project management and shall be involved in all activities in all work packages. Specifically, LNU shall directly contribute in developing BSR perspective of waste fires (A1.1), in developing innovative solutions for preventing waste fires (A 1.2) and its pilot testing (A 2.1), and will play a supporting role together with AGH university and SPGP for developing solutions for waste fire extinguishment. The LNU shall also contribute in WP-2 and WP-3 with other project partners.

634 / 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	Lund Universitetet (18 / 250 characters)
Organisation in English	Lund University (15 / 250 characters)
Department in original language	Avdelningen för Brandteknik (27 / 250 characters)
Department in English	Division of Fire Safety Engineering (35 / 250 characters)

Partner location and website:

Address	John Ericssons väg 1 (20 / 250 characters)	**Country**	Sweden
Postal Code	22363 (5 / 250 characters)	**NUTS1 code**	Södra Sverige
Town	Lund (4 / 250 characters)	**NUTS2 code**	Sydsverige
Website	www.brand.lth.se (16 / 100 characters)	**NUTS3 code**	Skåne län

Partner ID:

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

Partner type:

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

Lund University shall be mainly involved in development of new solutions for early detection of waste fires (A.1.2 in WP-1), piloting of these solutions (A. 2.1 in WP-2) and transferring these solutions to stakeholders (A.3.1 in WP-3). Lund University has specialized laboratories that in view of fire safety hazards are necessary to perform planned experiments in this project.

378 / 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 Akademia Górniczo-Hutnicza im. Stanisława Staszica w Krakowie

61 / 250 characters

Organisation in English AGH University of Science and Technology

40 / 250 characters

Department in original language Katedra Kształtowania i Ochrony Środowiska

42 / 250 characters

Department in English Department of Environmental Management and Protection

53 / 250 characters

Partner location and website:

Address al. Mickiewicza 30

18 / 250 characters

Postal Code 30-059

6 / 250 characters

Town Kraków

6 / 250 characters

Website www.agh.edu.pl

14 / 100 characters

Country Poland

NUTS1 code Makroregion południowy

NUTS2 code Małopolskie

NUTS3 code Miasto Kraków

Partner ID:

Organisation ID type Tax identification number (NIP)

Organisation ID 6750001923

VAT Number Format PL + 10 digits

VAT Number **N/A** ☐ PL6750001923

12 / 50 characters

PIC 999844573

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:

The AGH university shall contribute in A. 1.1, A. 2.2, shall employ its experience regarding assessing the impact of fires on air quality (A. 2.3) and shall also be involved in A. 3.1. The AGH has excellent experience in the area of waste emission and have experience of using meteorological data, HYSPLIT modelling, aerosol optical depth (AOD) data and satellite imagery analysis for investigate the environmental impacts of waste fires. Additionally AGH has a dedicated laboratory for testing the process of open burning of waste samples, which will be used for measurements of air pollutants. Moreover, leaching tests on rest waste after the fire will be made to determine potential pollution of soil and ground water (e.g. PAH polycyclic aromatic hydrocarbons) at selected sites. The AGH together with other project partners shall organize an international seminar in Krakow to disseminate the results of the project to all relevant stakeholders.

954 / 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	Szkoła Główna Służby Pożarniczej 32 / 250 characters
Organisation in English	The Main School of Fire Service 31 / 250 characters
Department in original language	Instytut Inżynierii Bezpieczeństwa 34 / 250 characters
Department in English	Institute of Safety Engineering 31 / 250 characters

Partner location and website:

Address	Słowackiego 52/54 17 / 250 characters	**Country**	Poland

Postal Code	01-629 (6 / 250 characters)	**NUTS1 code**	Makroregion województwo mazowieckie
Town	Warsaw (6 / 250 characters)	**NUTS2 code**	Warszawski stołeczny
Website	www.sgsp.edu.pl (15 / 100 characters)	**NUTS3 code**	Miasto Warszawa

Partner ID:

Organisation ID type	Tax identification number (NIP)
Organisation ID	1180035927
VAT Number Format	PL + 10 digits
VAT Number	N/A ☐ PL1180035927 (12 / 50 characters)
PIC	999475682 (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:

The main role of School of Fire Service (SGSP) shall do the evaluation of environmental hazards of waste fires, shall play the core role in A. 1.3, A. 2.3, & A. 3.1, and shall support other partners in all other WPs. The SGSP shall conduct environmental impact assessment of waste fires regarding types of waste and way of storing it. The SGSP is a suitable project partner as has specialized laboratories for pilot scale testing and facilities to conduct field experiments. The role of SGSP in project is also important due to its direct connectivity with end-users of project results e.g. fire safety officers. The SGSP produces high quality professionals in fire safety science (Bachelor/Master/PhD) & connected with State Fire Service in Poland. The knowledge produce from the project shall be beneficial for research & education, for all related stakeholders and especially contribute to competence of fire commanders in the BSR countries.

946 / 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	Latvijas Atkritumu saimniecības asociācija (42 / 250 characters)
Organisation in English	Waste Management Association of Latvia (38 / 250 characters)
Department in original language	Latvijas Atkritumu saimniecības asociācija (42 / 250 characters)
Department in English	Waste Management Association of Latvia (38 / 250 characters)

Partner location and website:

Address	Kursu street 9-2 (16 / 250 characters)	**Country**	Latvia
Postal Code	LV-1006 (7 / 250 characters)	**NUTS1 code**	Latvija
Town	Riga (4 / 250 characters)	**NUTS2 code**	Latvija
Website	www.lasa.lv (11 / 100 characters)	**NUTS3 code**	Rīga

Partner ID:

Organisation ID type	Unified registration number (Vienotais reģistrācijas numurs)
Organisation ID	40008009597
VAT Number Format	LV + 11 digits
VAT Number	**N/A** ☑ (0 / 50 characters)
PIC	n/a (3 / 9 characters)

Partner type:

Legal status	b) Private	
Type of partner	NGO	Non-governmental organisations, such as Greenpeace, WWF, etc.
Sector (NACE)	94.12 - Activities of professional membership organisations	

Partner financial data:

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

Financial data			
Reference period	01/01/2021	–	31/12/2021
Staff headcount [in annual work units (AWU)]			7.5
Employees [in AWU]			3.0
Persons working for the organisation being subordinated to it and considered to be employees under national law [in AWU]			1.5
Owner-managers [in AWU]			0.5
Partners engaged in a regular activity in the organisation and benefiting from financial advantages from the organisation [in AWU]			2.5
Annual turnover [in EUR]			62,114.00
Annual balance sheet total [in EUR]			44,562.00
Operating profit [in EUR]			8,580.00

Role of the partner organisation in this project:

Latvian Waste Management Association shall contribute in the A.1.1 i.e. "Baltic Sea Region perspective on waste fires", under Work Package (WP-1), in A. 2.2 "testing of best management practices", and in A. 3.1 in (WP-3) i.e. "Transferring solutions". Latvian Waste Management Association shall organize seminars, workshops, shall collect data on waste fire, shall help in compilation best management practices and shall do field visits of selected cites. The intention is to prepare solutions, together with other project partners, to help address the identified challenge, to develop entirely new solutions or adapt existing solutions to the needs of target groups. The partner role is to study waste fires in relation with disposed bio-waste quantities, preparing solutions in a way that can pilot them in WP-2. Under WP-3, seminars and workshops will be conducted to disseminate the best management practices and new solutions will be demonstrated for relevant stakeholders.

980 / 1,000 characters

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

○ Yes ○ No

2.2 Project Partner Details - Partner 6

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

Partner name:

Organisation in original language	Šilalės rajono savivaldybės administracija (42 / 250 characters)
Organisation in English	Administration of Silale's district municipality (49 / 250 characters)
Department in original language	Investicijų ir statybos skyrius (31 / 250 characters)
Department in English	Department of Investment and construction (42 / 250 characters)

Partner location and website:

Address	J. Basanaviciaus str.2, Silale, Lithuania (41 / 250 characters)	**Country**	Lithuania
Postal Code	75138 (5 / 250 characters)	**NUTS1 code**	Lietuva
Town	Silale (6 / 250 characters)	**NUTS2 code**	Vidurio ir vakarų Lietuvos regionas
Website	www.silale.lt (13 / 100 characters)	**NUTS3 code**	Tauragės apskritis

Partner ID:

Organisation ID type	Legal person's code (Juridinio asmens kodas)
Organisation ID	188773720
VAT Number Format	Please select
VAT Number	**N/A** ☑ 0 / 50 characters
PIC	N/A 3 / 9 characters

Partner type:

Legal status	a) Public	
Type of partner	Local public authority	Municipality, city, etc.
Sector (NACE)	84.11 - General public administration activities	

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:

Silale's district municipality shall contribute in the A.1.1 i.e. "Baltic Sea Region perspective on waste fires", under Work Package (WP-1), in A.2.2 "testing best management practices" in WP-2 and in A. 3.1 in WP-3 i.e. "transfering Solutions". Silale's district municipality shall have a supporting role in organization of seminars, workshops, and in collection of data for waste fire. The partner shall contribute in development of best management practices, shall do field visits of selected cites and shall contribute in development, implementation and testing of new solutions for branch organizations and other stakeholders.

633 / 1,000 characters

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

◉ Yes ○ No

2.3 Associated Organisation Details - AO 1

Associated organisation name and type:

Organisation in original language
Šilalės rajono savivaldybės priešgaisrinė tarnyba
49 / 250 characters

Organisation in English
Silale's district municipality fire rescue department
54 / 250 characters

Department in original language
Šilalės rajono savivaldybės priešgaisrinė tarnybos viršininkas
62 / 250 characters

Department in English
Chief of Silale's district municipality fire rescue department
63 / 250 characters

Legal status
a) Public

Type of associated organisation
Sectoral agency

Local or regional development agency, environmental agency, energy agency, employment agency, etc.

Associated organisation location and website:

Address
Maironio str. 20B, Silale, Lithuania
36 / 250 characters

Country
Lithuania

Postal Code
75136
5 / 250 characters

Town
Silale
6 / 250 characters

Website
www.sspt.lt
11 / 100 characters

Role of the associated organisation in this project:

Šilalė District Municipality fire rescue department is a municipal budgetary institution - a part of the civil protection and rescue system of permanent readiness. The purpose of the fire service is to put out fires and perform initial rescue work on people and property. The fire rescue department shall share its database, observations, experiences, practices and approaches for fire fighting. The partner shall provide inputs in A.1.1, A.1.3, A. 2.2, A.2.3, and A. 3.1.
475 / 1,000 characters

2.3 Associated Organisation Details - AO 2

Associated organisation name and type:

Organisation in original language
Winning Innovation i Lund AB
28 / 250 characters

Organisation in English
Winning Innovation in Lund AB
29 / 250 characters

Department in original language
WIN Guard
9 / 250 characters

Department in English
WIN Guard
9 / 250 characters

Legal status
b) Private

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
IDEON SCIENCE PARK, SCHEELEV 15
32 / 250 characters

Country
Sweden

Postal Code
223 70
6 / 250 characters

Town
LUND
4 / 250 characters

Website
https://winway.se/
18 / 100 characters

Role of the associated organisation in this project:

Experienced in the subject from similar research (https://www.brandforsk.se/forskningsprojekt/2021/tidig-detektering-av-sjalvantandning-i-biomassa/) . A role as an external expert for WP 2 in requirements and evaluations of detection methodologys and technology. May also assist in WP 3 and the organisation of seminars for communication of results with the BSR countries.
375 / 1,000 characters

2.3 Associated Organisation Details - AO 3

Associated organisation name and type:

Organisation in original language
UAB Tauragės regiono atliekų tvarkymo centras
45 / 250 characters

Organisation in English
JSC Tauragė Region Waste Management Center
42 / 250 characters

Department in original language
Tauragės regiono atliekų tvarkymo centro administracija
55 / 250 characters

Department in English
Administration of JSC Tauragė Region Waste Management Center
60 / 250 characters

Legal status
b) Private

Type of associated organisation
Small and medium enterprise

Micro, small, medium enterprises < 250 employees, ≤ EUR 50 million turnover or ≤ EUR 43 million balance sheet total

Associated organisation location and website:

Address
V. Kudirkos g. 18, 72216 Tauragė, Lithuania
43 / 250 characters

Country
Lithuania

Postal Code
72216
5 / 250 characters

Town
Tauragė, Lithuania
18 / 250 characters

Website
www.uabtratc.lt
15 / 100 characters

Role of the associated organisation in this project:

The company organizes a regional municipal waste management system in compliance with the applicable environmental requirements, and develops the infrastructure facilities of the municipal waste management system in the Taurage region. Company is interested in this project as the project has high potential to develop new and innovative solutions to improve the health and safety culture in the branch industry. The partner can contribute with inputs and also would like to be involved to have knowledge of ongoing project activities.

535 / 1,000 characters

2.3 Associated Organisation Details - AO 4

Associated organisation name and type:

Organisation in original language: Nybro Kommun (12 / 250 characters)

Organisation in English: Nybro Municipality (18 / 250 characters)

Department in original language: Förvaltning (11 / 250 characters)

Department in English: Management (10 / 250 characters)

Legal status: a) Public

Type of associated organisation: Local public authority — Municipality, city, etc.

Associated organisation location and website:

Address: Samhällsbyggnadskontoret, Nybro kommun (38 / 250 characters)

Country: Sweden

Postal Code: 382 80 (7 / 250 characters)

Town: Nybro (5 / 250 characters)

Website: www.nybro.se (12 / 100 characters)

Role of the associated organisation in this project:

Municipality representatives shall participate in workshops and seminars. Municipality is interested in the project in view of its benefit for society and branch industries. The project is expected to help in improving the environmental challenges associated with waste industry. Being associate partner we may provide some suggestions and inputs in different activities.

371 / 1,000 characters

2.3 Associated Organisation Details - AO 5

Associated organisation name and type:

Organisation in original language: Nybro Energi AB (15 / 250 characters)

Organisation in English: Nybro Energy (12 / 250 characters)

Department in original language: Förvaltning (11 / 250 characters)

Department in English: Management (10 / 250 characters)

Legal status: a) Public

Type of associated organisation: Small and medium enterprise

Micro, small, medium enterprises < 250 employees, ≤ EUR 50 million turnover or ≤ EUR 43 million balance sheet total

Associated organisation location and website:

Address: Verktygsgatan 12 (16 / 250 characters)

Country: Sweden

Postal Code: 382 80 (7 / 250 characters)

Town: Nybro (5 / 250 characters)

Website: www.nybroenergi.se (18 / 100 characters)

Role of the associated organisation in this project:

Nybro Energy is interested to follow the different activities in the project. Nybro energy is a waste to energy power plant and handles large amounts of waste on daily basis. Waste fires is a serious issue for all actors that handles and stores waste. Nybro Energy shall participate in workshop/seminars and interested to know the knowledge produced in this project to adopt the solutions.

390 / 1,000 characters

2.3 Associated Organisation Details - AO 6

Associated organisation name and type:

Organisation in original language
EKO ODZYSK POLSKA Sp. z o.o.
28 / 250 characters

Organisation in English
EKO ODZYSK POLSKA Sp. z o.o.
28 / 250 characters

Department in original language
EKO ODZYSK POLSKA Sp. z o.o.
28 / 250 characters

Department in English
EKO ODZYSK POLSKA Sp. z o.o.
28 / 250 characters

Legal status
b) Private

Type of associated organisation
Small and medium enterprise

Micro, small, medium enterprises < 250 employees, ≤ EUR 50 million turnover or ≤ EUR 43 million balance sheet total

Associated organisation location and website:

Address
GRZĘBISZEW, kOŁBIELSKA 2
24 / 250 characters

Country
Poland

Postal Code
05-300
6 / 250 characters

Town
Grębiszew
9 / 250 characters

Website
www.ekoodzysk.com.pl
20 / 100 characters

Role of the associated organisation in this project:

The organization is waste management and recycling company. The company is interested with solutions preventing fire hazards and risks at waste recycling facility. The organization can adopt solutions developed during project.
226 / 1,000 characters

3. Relevance

3.1 Context and challenge

Literature has highlighted that the intensity and frequency of waste fire incidents has tremendously increased in the past one decade in the Baltic Sea Region (BSR) countries. Several catastrophic incidents of waste fire have been reported in the recent past e.g. a disastrous waste fire at Lviv city-landfill in "Hrybovychi" caused fatalities in 2016, a waste fire at mechanical and biological treatment (MBT) facility in Tallinn caused large scale spreading of dangerous chemicals over the populated areas in 2018, a fatal waste fire in Botkyrka in 2021, took several weeks to extinguish and created a local emergency, and waste fires in Gävle (on 4th Aug, 2021) and in Halmstad (on 28 Aug, 2021) caused complete destruction of two waste recycling facilities, are some examples of BSR.

The source of concern is that waste fires have super high socioeconomic cost and emissions being persistent & bio accumulative, tremendously damaging the environment. Literature shows that waste fires are the most dominant source of emissions of PCDD/Fs in Europe and according to the Global Burden of Disease study, emissions from waste fires cause 270,000 premature adult deaths annually. Waste fire emissions are known to cause lung cancer, pregnancy disorder & neurological ailments to downwind populations. Waste fires are known to instigate forest fires, and in general, emerged as a serious matter of public concern (e.g EU parliament Petition 0722/2015).

The current challenges are that there is lack of scientific knowledge on prevention & mitigation of waste fire incidents, environmental laws are vague, underlying causes of 1/2 waste fires are not known, with the current technologies, it is impossible to make an early detection of waste fires, and knowledge on proportionate emissions to air, water and soil is not sufficient. The project shall focus on bridging these gaps in knowledge and to develop policy guidelines for safe handling and storage of waste & biofuels in BSR & world wide.

2,000 / 2,000 characters

3.2 Transnational value of the project

A careful analysis of the EU database (keep.eu) shows that no attempt was ever made to specifically address the issue of waste fires through a transnational cooperation. This is the reason that no integrated approach for mitigating the risk of waste fires exist today at national/international level in BSR. A transnational cooperation in this project for addressing the risk of waste fires, where partners have different experiences, would help in developing the uniform policies, regulations and guidelines at EU level.

Considering that there are several unknown pathways and conditions which can result in ignition of waste fires, each waste fire incident in BSR is a unique incident. It is necessary to develop a transnational integrated approach for identifying the full range of hazards, to develop a shared vision of existing risks and to suggest a range of systematic approaches for specific settings to address the problem of waste fires and to mitigate its consequences. A transnational cooperation would create new knowledge that would be beneficial for the waste management sector in the whole EU region. A transnational cooperation is also necessary to ensure safe trading of waste, recyclables and biofuels in BSR, and to avoid fire incidents like that happened on a shipping vessel in Gothenburg on 4th Dec, 2021, which resulted in release of thousands of liters of toxic fire extinguishing water in the Baltic Sea. Further, in this project, it is intended to investigate innovative approaches for early detection of smoldering fires and to develop environmental friendly extinction strategies of waste fire through a transnational cooperation. The involvement of diverse stakeholders from different BSR countries would ensure the successful achievement of project objectives and would ensure the testing of solutions in different settings. Countries and partners selected in the project has right competence and resources that is necessary for the success of the project.

1,988 / 2,000 characters

3.3 Target groups

Target group	Sector and geographical coverage	Its role and needs
Small and medium enterprise	Waste management companies that are handling, sorting, transporting and storing waste and biofuels at Poland, Latvia, Lithuania, Sweden and even in the rest of EU. 163 / 500 characters	Waste and recycling sector is terribly effected from waste fires. There is need to smooth line business operations and prevent the nuisance of waste fires. The knowledge obtained from the project shall help in upgrading the safety standards of whole waste management sector. 275 / 1,000 characters
Higher education and research instituti	Research Institutes and universities of Poland, Latvia, Lithuania and Sweden 76 / 500 characters	Higher education institutes need to promote research and education related to risk of waste fires. The network could be extended to researchers in the other parts of the world. Higher education institute can do this using a triple helix concept that holds a close industry-academia collaboration that shall be demonstrated in this project. 339 / 1,000 characters
National public authority	National authorities related to waste management and public safety at Poland, Latvia, Lithuania and Sweden 107 / 500 characters	National waste management associations need science based innovative solutions to help guide the whole waste recycling branch within the country and to have a transnational network with the other waste management associations. Similarly, environmental authorities needs to develop national level guidelines and to contribute in developing legislation at the EU level. The knowledge produced from this proposed project would pave the way in developing national/EU level guidelines that could help i mitigating the risk of waste fires and would help in achieving the circular economy objectives in a true sense. Secondly, emissions from all waste fires are not alike e.g. it may depend upon smoldering/flaming, type of waste, storage methods etc. Fire rescue services needs to know the health hazards for rescue personals (FRP), while conducting rescue operation. It is necessary to provide right protection to personals and to develop right extinguishing strategies. 968 / 1,000 characters
Business support organisation	Business support organizations at Poland, Latvia, Lithuania and Sweden 70 / 500 characters	To develop new business opportunities that can provide innovative solutions to branch industries in the whole BSR region for mitigation of risk of waste fires 158 / 1,000 characters
Local public authority	Different municipalities in Poland, Latvia, Lithuania and Sweden 64 / 500 characters	Municipalities can implement policies for safe handling of waste, bio-fuels and recyclables and afterwards can develop a plan for checking the compliance based on the knowledge developed in the project. 202 / 1,000 characters

3.4 Project objective

Your project objective should contribute to:

Circular economy

The core aim of the project is to counter the emission rebound effect, which occurs when increased recovery and recycling activities (i.e. promotion of circular economy), which intends to provide environmental benefits by reducing greenhouse emissions (e.g. methane), are in contrary, enhancing the release of toxic emissions due to increased number of waste and bio-fuel fires. Waste fires are dangerous for human health (for firefighters as well as waste professionals) and are in direct conflict with the EU's aim for transition to Circular Economy. As the project is aimed to mitigate the risk of waste fires at all stages of waste management chain through innovative approaches, the project would help in achieving the EU circular economy objectives in true sense. In other words, the proposed project is deep routed in the concept of circular economy.

Comment:
List of categories. How project help each target group.

923 / 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 Secure

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

Following are the actions of the Policy Area "PA Secure", to which this project contributes.

(a). Action-1: "Build capacities for prevention, preparedness, response and recovery in emergency and crisis management":

Literature shows that waste fire incidents give rise to mass scale environmental and health related emergencies for downwind residing population. A better knowledge on underlying causes of waste fires, development of innovative solutions for early detection of waste fires and development of best management practices for fire extinguishing, which are key aims of project, would enhance the capacities of waste management companies and fire rescue services, and all other stakeholder to avoid emergency situations that arise out from waste fires.

(b). Action-2: "Developing and strengthening the mechanisms for joint strategic and operational actions for protecting human beings and societies from criminal activities".

Waste fire statistics shows that criminal activities and arson waste fires has tremendously increased in past years. Scientific evaluation of all potential pathways that leads to arson fires would help in development of joint strategic actions to avoid criminal activities and arson waste fires that are terribly affecting our societies.

1,285 / 1,500 characters

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

This project has high potential to contribute in "Building a climate-neutral, green, fair and social Europe", which is one of the priority areas of EUSBSR. A multilevel-transnational model of this project shall help in connecting the whole region on the issue of waste fires (i.e. contributing to Action 3: Baltic synchronization). The project also contribute to Action-4 under Policy Area Energy, by increasing the share of renewable energy (i.e. increased use of waste fuels) in the national energy mix by ensuring the safe and secure supply of secondary fuel (i.e. waste fuels for which recycling is not possible).

618 / 1,500 characters

3.6 Other political and strategic background of the project

Strategic documents
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (with EEA relevance) - This directive is for utmost importance to us as it regulates several key factors on waste management that can either hinder or enable waste fires. One example is the storage of waste and precautionary measure taken to avoid fires, but also security measures regarding access to sites etc. 441 / 500 characters
WHO global air quality guidelines - Our project will clearly use the document to evaluate our work and provide qualitative statements on good practices for the management of certain types of PM (i.e. black carbon or elemental carbon (BC/EC) and ultrafine particles (UFP) that are a result of waste fires. 304 / 500 characters
EU circular economy action plan (CEAP) - This action plan has an overarching connection to our project as it relates to several of the aspects brought up in our proposal with regards to increased security of waste management to lower for example hazardous airpollutants caused by fires. One concrete example of this is the policy area of sustainable development that aims to achieve zero hazardous air pollutant dispersion. 424 / 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
Early detection of deep-seated fires 36 / 200 characters	Åforsk received by Linnaeus University. 39 / 200 characters	The previously funded project by Åforsk, had limited scope and was limited only to the development of new methods that could help in investigating the usefulness of geological techniques for detection of deep-seated smoldering hot-spots. The previous project was limited to the development of laboratory methods for testing the geological techniques at laboratory with small samples (1 cubic feet scale). Preliminary results from previous project gave confidence on usefulness of geological techniques. The previous project gave useful knowledge but there is still need to do more experiments to investigate the usefulness of this innovative approach for detection of waste fires under different storage conditions. The knowledge obtained from previous project shall help in refining the testing methodology and would help in answering several research oriented questions that are intended to be investigated in this new project e.g. spatial sensitivity, and material and storage conditions. 993 / 1,000 characters

Full name of the project	Funding Source	Use of the project outcomes and/or planned cooperation
The impact of landfill fires on the atmospheric air quality - methodology and estimation of emission 100 / 200 characters	National Science Center (NCN), Poland, Received by The Main School of Fire Service, Poland 90 / 200 characters	The previous project that was funded by NCN aimed to develop a methodology & estimation of emissions from landfill fires. The project was a response to the phenomenon of a sharp increase in the number of landfill fires in recent years in Poland. Multidirectional analysis of the emissive, immisive, meteorological, and statistical data were the base for the development of the unique and universal methodology of landfill fire impact assessment on the atmospheric air quality. The results of previous research project published in impactful in scientific journals provide a good foundation about waste fires' impact on atmospheric air. Previous project was in the domain of pure science and knowledge and experience obtained from previous project would help in developing the practical solutions for fighting waste fire, with due consideration to its environmental implications. The test shall be adapted and validated based on examples of waste fires on the scale of the whole Baltic Sea Region. 998 / 1,000 characters
Waste fires - identification and evaluation of significant impacts on the environment and climate 97 / 200 characters	Ministry of Education and Science in Republic of Poland, grant "Initiative for Excellence - Research University" for AGH University of Science and Technology. 159 / 200 characters	The objectives the project include: detailed inventory of waste fires in Poland as well assessing of the impact on air quality of selected fires using measurement results derived from the public air quality monitoring system, meteorological data, trajectory modelling, aerosol optical depth data and satellite imagery analysis. Moreover, a dedicated laboratory bench has been constructed for testing the process of open burning of waste samples, analogous to this waste that have burned in real fire. There is no overlap between a previous project and this project. On the contrary knowledge and know-how obtained from the previous research will be used for wider scale in Baltic region countries. 700 / 1,000 characters
LIFE20 IPE/LV/000014 LIFE Waste to Resources IP 47 / 200 characters	LIFE programm and Regional Development Fond of Latvia, received by Latvian Waste Mangement Association 102 / 200 characters	The results of the project, which indicate the amount of composted and anaerobically recycled bio-waste in the country, are used to calculate the change in the amount of waste disposed in landfills and to estimate the amount of CH_4 emitted that causes local fires in landfills. There is no overlap between previous project and this project. The knowledge and experience from previous project shall help in producing more knowledge in this new project about waste fires in a BSR perspective. 490 / 1,000 characters

Full name of the project	Funding Source	Use of the project outcomes and/or planned cooperation
Integrated Technological and Information Platform for wildfire Management SILVANUS Grant agreement ID: 101037247 113 / 200 characters	HORIZON 2020 Funded under SOCIETAL CHALLENGES - Climate action, Environment, Resource Efficiency and Raw Materials, recieved by The Main School of Fire Service. 162 / 200 characters	The key output of the SILVANUS project is the release of a climate-resilient forest management platform to prevent and limit the spread of forest fire. There is no possibility of overlap or double financing since SILVANUS is focused on forest fires and RAROG on waste fires. There will be cross-fertilization of both projects realized by The Main School of Fire Serivce. Depending on the timeframe of both projects, either SILVANUS results of forest resilience management can be used as an input knowledge for mitigation of the impact of waste fires on forests, or RAROG results can be used as initial knowledge by SILVANUS in forest management planning. Considering that hazards of ignition of forest fires caused by waste fires is a new emerging phenomenon, this new project shall produce very useful knowledge for all stakeholders related to waste management sector and even for forest industry. 902 / 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 20%

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.

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

133 / 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.

The lead partner and all project partners will comply with the rules for the financial management and control as described in the Programme Manual.

147 / 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.

The results shall be communicated both at National and International level through various communication means: web tools, workshops, international conferences and through production of peer reviewed journal articles. The web tools (e.g. websites, recorded webinars, you-tube channel and other social media platforms etc.) shall be employed actively for disseminating the project results and information regarding various project activities.

441 / 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	Waste fires - The Baltic Sea Region (BSR) perspective
1.2	Developing the methodology for early detection of smoldering fires
1.3	Developing best fire extinguishing practices based on knowledge of waste fire emissions

Number	Work Package Name
2	WP2 Piloting and evaluating solutions

Number	Group of Activity Name
2.1	Pilot testing of geological techniques for monitoring of pilot scale heaps
2.2	Development and testing of Best Management Practices to avoid waste fires
2.3	Evaluating best extinguishing practices

Number	Work Package Name
3	WP3 Transferring solutions

Number	Group of Activity Name
3.1	Development of a resilient waste sector in BSR with reduce risk of waste fires & its consequences

Work plan overview

Period:	1	2	3	4	5	6	Leader
WP.1: WP1 Preparing solutions							**PP1**
A.1.1: Waste fires - The Baltic Sea Region (BSR) perspective							PP1
D.1.1: Identification of critical fractions and path-ways that leads to spontaneous fires			D				
A.1.2: Developing the methodology for early detection of smoldering fires							PP2
D.1.2: Better knowledge on use of geological techniques for detection of smoldering fire			D				
A.1.3: Developing best fire extinguishing practices based on knowledge of waste fire emissions							PP4
D.1.3: Environmental hazards on ignition of waste				D			
WP.2: WP2 Piloting and evaluating solutions							**PP1**
A.2.1: Pilot testing of geological techniques for monitoring of pilot scale heaps							PP2
O.2.1: Advanced applied knowledge on the use of geological techniques for early detection of waste fires					O		
A.2.2: Development and testing of Best Management Practices to avoid waste fires							PP5
O.2.2: Development of best management practices					O		
A.2.3: Evaluating best extinguishing practices							PP4
O.2.3: Exemplary, best practices on environmental protection during extinguishing waste fires					O		
WP.3: WP3 Transferring solutions							**PP1**
A.3.1: Development of a resilient waste sector in BSR with reduce risk of waste fires & its consequences							PP1
O.3.1: Innovative business models for handling waste fires						O	

Outputs and deliverables overview

Code	Title	Description	Contribution to the output	Output/ deliverable contains an investment
D 1.1	Identification of critical fractions and path-ways that leads to spontaneous fires	The activities in this work package shall help in developing a comprehensive picture of the whole BSR region related to incidents of waste fires. This would include the collection and compilation of waste fire statistics and to study some selected waste fire incidents in detail to identify the critical waste fraction, pathways and surrounding conditions that leads to spontaneous fires. Considering that every waste fire incident is unique, there is a lot that could be learnt by studying the past waste fire incidents. This transnational approach would provide an broader and deeper picture of hazards of waste fires in BSR countries and would help in development of best management practices for the whole branch industry and even for other stakeholders. The recommendations would be developed at process level as well as at the system level. The knowledge produced shall help in conducting the activities in WP-2 and WP-3.	O.2.2. Development of best management practices...; O.3.1 New business models for handling...	

D 1.2	Better knowledge on use of geological techniques for detection of smoldering fire	Industries involve in storage of waste and bio-fuels would be able to confidently identify the size and location of smoldering hot-spots deep inside the heap. These new and innovative solutions (i.e. use of geological techniques for early detection of waste fires) has a potential to transform the whole waste recycling sector and would replace the traditional methods e.g IR cameras and handheld temperature sensors. IR Cameras can only sense the temperature at the surface and handheld temperature sensors can provide the point data (only about 1m below the surface), and practically failed to make early detection of smoldering fires. Gas sensors cannot work in outdoor storage due to dilution effect and previously found useless. Therefore the new innovative solutions for early detection of waste fires that shall be developed in this project has an extremely high transnational value and could be adopted at other geographical locations in BSR and even worldwide.	O 2.1 Advanced knowledge on the use of geological...; O.3.1 New business models for handling...	
D 1.3	Environmental hazards on ignition of waste	This activity shall provide a comprehensive picture of environmental hazards associated with typical waste fractions and shall suggest the suitable strategies to be followed by fire rescue services to limit the environmental damage as a result of certain waste fire incidents. The field and laboratory experiments will result in the identification of elemental profiles, chemical mass balance, and positive matrix factorization for different stages of fires and waste types. It will generate knowledge on what is real pollution and how to mitigate the environmental impact of waste fires in view of type of waste, way of storing it and the combustion stage (smoldering, incipient flaming fire (growth stage), and fully developed fire (free burning). Emission would be different for different combustion stages and requires tailored extinguishing strategies, and knowledge about these aspects shall help local authorities to develop protocols for waste storage, set the limits on pile size, and classify the waste fractions in view of their potential environmental hazards. It is observed that in several incidents of waste fires, fire rescue services were unclear about the extinguishing methods and in many cases waste was allowed to keep on burning, which affected the downwind population. The knowledge of atmospheric emissions in different fire stages will let to improve firefighting guidelines for each stage of fire which will mitigate environmental impact.	O.2.3 Good practices on environmental protection...; O.3.1 New business models for handling...	
O 2.1	Advanced applied knowledge on the use of geological techniques for early detection of waste fires	Better knowledge about monitoring the biological and chemical processes, and temperature transitions in the waste piles. This would help in determining the pros and cons, detection limit of this new technique, the storage conditions (particle size, moisture contents, size of heap etc) under which it works well and conditions under which this new technique has limitations. This would lead to development more sophisticated and intelligent model for prediction of smoldering fires. One main output is it provides the knowledge to design the waste storage sites in a way that geological sensors could easily be installed and data could be collected and compiled easily.		
O 2.2	Development of best management practices	Best and innovative solutions from whole BSR region to avoid waste fires would be established and the potential remediation actions at process level and at system level would be developed in the form of best management practices (BMPs). The BMPs would cover broad perspective of waste fire incidents e.g. causes and pathways of fire incidents, strategies for avoiding the incidences and shortening the response time in case of any fire incidence, to develop comprehensive pollution prevention program, emergency management plan and communication plan with authorities in case of a waste fire incidents, strategies to avoid trans-boundary release of pollutants and joint strategies to cope such emergencies in BSR countries. Further, the protocols for incident reporting and incident investigation would be developed and solutions should be suggested so that, one one side, it is easy to report the incident and on the other hand, it also contains sufficient and meaningful information in a useful order so that it would help in improving the management of waste and reducing the risk of fires in future. so in short, one output is compilation of Best Management Practices for collection, compilation and verification of waste fire statistics The analysis of influence of legislative instruments at national level and EU level related to waste management and effect of other "polluter pay principle" based regulations on waste flows, waste sorting, waste storage and risk of waste fires shall be developed and shared with all stakeholders. Further, current situation of infrastructure of waste handling in BSR, its shortcomings, and areas of improvements to avoid the waste fire incidents and to minimize the environmental consequences will be developed. The design perspectives of waste sites to limit the spread of waste fires and its environmental consequences shall be developed. In short, main outputs of this activity are compilation of Best Management Practices to avoid waste fires at process level and at system level in BSR, organization of national and international workshops and seminars to spread the knowledge with all relevant stakeholders and production of research articles and reports to be shared with all relevant stakeholders.		
O 2.3	Exemplary, best practices on environmental protection during extinguishing waste fires	The output will use the results of WP1.3 to provide the best management practices (BMPs) for extinguishing waste fires. The output will be a science-based set of rules, and recommendations, based on the laboratory science results and on-field experiments. The output will cover all emissions discussed in WP1.3, their impact on public health, and the environment, and strategies for mitigating negative impacts shall be developed. In general, this output shall provide the knowledge about toxicity of emissions to air, water and soil as a result of waste fires. The knowledge will be of high practical use for fire rescue services and waste management companies to make right fire extinguishing choices based on the combustion conditions (smoldering, incipient fire (growth stage), free burning (fully developed fire) and material properties (e.g. type of material) etc. so that there is least damage to environment. Secondly, a deeper awareness of health hazards posed to fire rescue and employees at waste sites and needs of right choices for personal protective equipment shall be developed.		

O 3.1	Innovative business models for handling waste fires	This is the final output of the project. This output covers the all three life stages of waste fires i.e. pre-ignition, ignition and extinction phase. The "pre-ignition" stage is related to development of best management practices so that incidents of waste fires could be avoided from happening. The "ignition-phase" is related to early detection of waste fires so that environmental and economic losses could be avoided by preventing the smoldering fires to turn into flaming fires, which have very high flame spread rate and that even cause to ignition of secondary fires (structural fires, forest fires, secondary waste fires). The "extinction stage" is related to develop of best management practices (BMPs) for extinguishing waste fires with least environmental consequences. This output is amalgam of best management practices that covers these three life stages of waste fires. The BMPs would cover broad perspective of waste fire incidents e.g. causes and pathways of fire incidents, strategies for avoiding the incidences and shortening the response time in case of any fire incidence, to develop comprehensive pollution prevention program, emergency management plan and communication plan with authorities in case of a waste fire incidents, strategies to avoid trans-boundary release of pollutants and joint strategies to cope such emergencies. Further, the protocols for incident reporting and incident investigation would be studied in BSR region and solutions should be suggested so that, one one side, it is easy to report the incident and on the other hand, it also contains sufficient and meaningful information in a useful order so that it would help in improving the management of waste and reducing the risk of fires in future.		

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 - Linnaeus University

Work package leader 2 PP 2 - Lund University

5.4 Work package budget

Work package budget 40%

5.5 Target groups

	Target group	How do you plan to reach out to and engage the target group?
1	Small and medium enterprise Waste management companies that are handling, sorting, transporting and storing waste and biofuels at Poland, Latvia, Lithuania, Sweden and even in the rest of EU. 163 / 500 characters	Municipalities in all partner countries would be engaged at two levels. In some municipalities, municipal own companies are involved in handling, storage and even treatment of waste together with private actors. Secondly, municipal authorities have bodies that look at environmental perspective of ongoing waste related activities. These both types of municipal authorities would be directly involved in WP-1 for collection of waste fire statistics, to identify causes of waste fires and to develop strategies to prevent waste fire incidents. The findings would be shared directly through seminars and workshops. Further, to ensure wide spread dissemination of information to all municipalities in all partner countries, the platform of national waste management associations will be used. Transnational networking of relevant stakeholders will be made. 855 / 1,000 characters
2	Higher education and research institution Research Institutes and universities of Poland, Latvia, Lithuania and Sweden 76 / 500 characters	Research and Educational activities shall not be just limited to project partners. All research centers that are working in the domain of waste management and fire safety, in particular in BSR , and in general in EU, shall be invited in workshops and international conferences. For example, Linnaues University has been organizing international conferences (LNU Eco-Tech) every second year for last 20 years. The last LNU Eco-Tech conference was organized in 2020, in which there were 180 participants from 31 countries. Such, international events shall be the source for establishment the cooperation between companies, research institutes, and public authorities in the whole Europe and even the worldwide. 710 / 1,000 characters
3	National public authority National authorities related to waste management and public safety at Poland, Latvia, Lithuania and Sweden 107 / 500 characters	National associations of waste management in each partner country shall be invited to participate in workshops and seminars. One of the project partner is Latvian waste management association and in order to promote actor-actor transnational cooperation, representatives of waste management association of each partner country shall be invited in workshops and seminars, intermittently during the project implementation. 421 / 1,000 characters
4	Business support organisation Business support organizations at Poland, Latvia, Lithuania and Sweden 70 / 500 characters	One of the business support organization (Winning Innovation in Lund AB) is the associated partner in the project and it is intended to engage additional business support organization to ensure the smooth development and transfer of new technologies and solutions to related stakeholders all over the Europe. 308 / 1,000 characters
5	Local public authority Different municipalities in Poland, Latvia, Lithuania and Sweden 64 / 500 characters	Representatives of some large waste management companies that have been terribly effected from incidents of waste fires in the recent past shall be invited to participate in workshops and seminars. A waste management company (Eko Odzysk Polska) and a waste to energy plant (Nybro Energy) are already participating as associate partners. 336 / 1,000 characters

5.6 Activities, deliverables, outputs and timeline

No.	Name
1.1	**Waste fires - The Baltic Sea Region (BSR) perspective**
1.2	**Developing the methodology for early detection of smoldering fires**
1.3	**Developing best fire extinguishing practices based on knowledge of waste fire emissions**

WP 1 Group of activities 1.1

5.6.1 Group of activities leader

Group of activities leader PP 1 - Linnaeus University

A 1.1

5.6.2 Title of the group of activities

Waste fires - The Baltic Sea Region (BSR) perspective

53 / 100 characters

5.6.3 Description of the group of activities

The activities are planned in view of gaps in knowledge identified in recent scientific publications and in recent research done by project partners and challenges that are highlighted in different reports of branch organizations. Recent research done in some of BSR countries shows that the underlying causes of about 50% of waste fire incidents are not known. The strategy for collecting, compilation and verification of waste fire statistics vary in BSR countries. Quality of waste fire statistics also vary among BSR countries. In this group of activities, focus shall be on hunting the underlying causes of waste fires and in this regard, statistics and experiences from partner countries and other countries in EU shall be compiled to develop an overall picture of the waste sector in Europe in view of risk of waste fires. Challenges and best management practices shall be shared through workshops and conferences. One important pathway of waste fires is the improper sorting of waste. Due to improper waste sorting, risk of waste fires trickle from one stage to the next stage in the whole waste management chain. These aspects shall be explored and weakest link in the chain shall be investigated and solutions shall be proposed. Considering that every waste fire incident is unique, there is a lot that could be learnt by studying the past waste fire incidents. This transnational approach would provide an broader and deeper picture of hazards of waste fires in BSR countries and would help in development of best management practices for the whole branch industry and even for other stakeholders. The knowledge produced in this WP (WP-1) shall be used in WP-2 for pilot testing at selected waste management site/s.

The sub-activities include:

Compiling waste fire statistics in BSR to develop an overall picture of waste fires in BSR
Identifying the underlying causes of waste fires (similarities and differences in BSR countries)
Identifying risk of waste fires related to improper sorting in BSR
Socio-Economic and environmental consequences of waste fires in BSR
Criminal activities and arson fires in BSR
Case studies of selected waste fire incidents in BSR
How risk of waste fires amplified as waste materials flows in different stages of waste management chain.
identifying current challenges at process level and at system level to overcome risk of waste fires
Identifying similarities and differences in storage guidelines in BSR countries.
Influence of other factors on risk of waste fires e.g. that are related to legislative instruments etc.
Organization of national and international workshops and seminars to spread the knowledge with all relevant stakeholders
Development of research articles and reports to be shared with all relevant stakeholders.

2,777 / 3,000 characters

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

D 1.1

Title of the deliverable

Identification of critical fractions and path-ways that leads to spontaneous fires

82 / 100 characters

Description of the deliverable

The activities in this work package shall help in developing a comprehensive picture of the whole BSR region related to incidents of waste fires. This would include the collection and compilation of waste fire statistics and to study some selected waste fire incidents in detail to identify the critical waste fraction, pathways and surrounding conditions that leads to spontaneous fires. Considering that every waste fire incident is unique, there is a lot that could be learnt by studying the past waste fire incidents. This transnational approach would provide an broader and deeper picture of hazards of waste fires in BSR countries and would help in development of best management practices for the whole branch industry and even for other stakeholders. The recommendations would be developed at process level as well as at the system level. The knowledge produced shall help in conducting the activities in WP-2 and WP-3.

928 / 2,000 characters

Which output does this deliverable contribute to?

O.2.2. Development of best management practices...; O.3.1 New business models for handling...

93 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.1: WP1 Preparing solutions						
A.1.1: Waste fires - The Baltic Sea Region (BSR) perspective						
D.1.1: Identification of critical fractions and path-ways that leads to spontaneous fires						

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 2 - Lund University

A 1.2

5.6.2 Title of the group of activities

Developing the methodology for early detection of smoldering fires

66 / 100 characters

5.6.3 Description of the group of activities

It is intended to apply geological techniques (Direct Current resistivity and time-domain Induced Polarization (DCIP) and Multi-frequency Stångslingram) for detection of deep-seated fires. The focus shall be on developing a new solutions for early detection of waste fires and to know the limitations of this new technique. For example, the detection limits of new technique, to investigate the conditions under which technique is more reliable and under what conditions it can not predict well. The parameters to be investigated could be: spatial sensitivity (depth of smoldering fire) and physical characteristics of stored material e.g. particle size, moisture content etc.

The experiments shall be planned by using the competence of different project partners. The researchers from AGH university and from Lund University have specialized knowledge about geological techniques. Researchers from Linnaeus University have experience of experimental and theoretical studies related to waste fires. Lund University and The Main School of Fire Service has specialized labs to conduct laboratory scale and pilot scale experiments. A decent combination of expertise and support from waste management company would help in materializing the new solutions for the waste management sector in EU for mitigation of risk of waste fires.

Sub activities includes:

Development of lab scale experimental setup
Conducting the series of small scale lab experiments to test various settings of different parameters e.g. physical characteristics of material, material size, material type, moisture content etc.
Developing scientific articles and reports
Sharing of results at national/international workshops

1,700 / 3,000 characters

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

D 1.2

Title of the deliverable

Better knowledge on use of geological techniques for detection of smoldering fire

81 / 100 characters

Description of the deliverable

Industries involve in storage of waste and bio-fuels would be able to confidently identify the size and location of smoldering hot-spots deep inside the heap. These new and innovative solutions (i.e. use of geological techniques for early detection of waste fires) has a potential to transform the whole waste recycling sector and would replace the traditional methods e.g IR cameras and handheld temperature sensors. IR Cameras can only sense the temperature at the surface and handheld temperature sensors can provide the point data (only about 1m below the surface), and practically failed to make early detection of smoldering fires. Gas sensors cannot work in outdoor storage due to dilution effect and previously found useless. Therefore the new innovative solutions for early detection of waste fires that shall be developed in this project has an extremely high transnational value and could be adopted at other geographical locations in BSR and even worldwide.

971 / 2,000 characters

Which output does this deliverable contribute to?

O 2.1 Advanced knowledge on the use of geological...; O.3.1 New business models for handling...

95 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.1: WP1 Preparing solutions						
A.1.2: Developing the methodology for early detection of smoldering fires						
D.1.2: Better knowledge on use of geological techniques for detection of smoldering fire						

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 4 - The Main School of Fire Service

A 1.3

5.6.2 Title of the group of activities

Developing best fire extinguishing practices based on knowledge of waste fire emissions

87 / 100 characters

5.6.3 Description of the group of activities

A recently published report of Swedish fire rescue services pointed out that it is not clear whether either extinguishing a certain waste fire is a more environmentally friendly option or it is more appropriate to let the material burn as there is little knowledge on comparative emissions that are released to air and that released to water. Past studies show that emissions from waste fires include: particulate matter (PM), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), dioxins, CO, HCN, HF, CO2, SOx, NOx, BTEX compounds (benzene, ethylbenzene, toluene, and xylenes) but waste being heterogeneous in nature can cause a significant change in the elemental profile or can involve additional emissions e.g, electronic waste may release polybrominated diphenyl ethers (PBDEs) due to usage of fire retardants. Currently, there is a lack of knowledge on a comparative study of air emissions and pollutants that shift to fire extinguishing water. The migration of released pollutants between waste, air, and soil shall be investigated. The usage of water, foams, and/or powders for extinguishing fires can cause different elemental emission profiles. The comparative studies of emission and analysis of positive matrix factorization, chemical mass balance, and principal component analysis of the elemental composition of PM can answer the question of how to extinguish fires to mitigate their environmental impact. In this regard, it is intended to analyze particulate matter (PM) concentration and its elemental composition based on X-ray fluorescence and Beta-ray attenuation (XRF) for field measurements. The real-time XRF analyzer is essential to observe changes in the scale of minutes, while the instrumental methods with the use of mineralized PM solutions do not allow to determine elemental composition for such samples. Henceforth, the elemental composition just after ignition, during fire growth, fully developed fire, and decay stage can be distinguished and the impact of extinguishing methods can be determined.
The test will be performed at laboratories of partners providing data about the burning in different conditions. Additionally leaching tests of remaining waste after the fire will be made to determine potential pollution released to groundwater. We will also examine pollutants deposited in soils (mainly PAHs) around the places of selected waste fires.

The sub activities will include:
-tests in fire laboratories at The Main School of Fire Service;
-tests at training facilities at The Main School of Fire Service;
-experiments at special open burning laboratory at AGH
-determining the source apporionment;
-preparing scientific articles for most impactful journals;
-determining more complex waste fires products at external laboratories.

2,803 / 3,000 characters

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

D 1.3

Title of the deliverable

Environmental hazards on ignition of waste

42 / 100 characters

Description of the deliverable

This activity shall provide a comprehensive picture of environmental hazards associated with typical waste fractions and shall suggest the suitable strategies to be followed by fire rescue services to limit the environmental damage as a result of certain waste fire incidents. The field and laboratory experiments will result in the identification of elemental profiles, chemical mass balance, and positive matrix factorization for different stages of fires and waste types. It will generate knowledge on what is real pollution and how to mitigate the environmental impact of waste fires in view of type of waste, way of storing it and the combustion stage (smoldering, incipient flaming fire (growth stage), and fully developed fire (free burning). Emission would be different for different combustion stages and requires tailored extinguishing strategies, and knowledge about these aspects shall help local authorities to develop protocols for waste storage, set the limits on pile size, and classify the waste fractions in view of their potential environmental hazards. It is observed that in several incidents of waste fires, fire rescue services were unclear about the extinguishing methods and in many cases waste was allowed to keep on burning, which affected the downwind population. The knowledge of atmospheric emissions in different fire stages will let to improve firefighting guidelines for each stage of fire which will mitigate environmental impact.

1,464 / 2,000 characters

Which output does this deliverable contribute to?

O.2.3 Good practices on environmental protection...; O.3.1 New business models for handling...

94 / 100 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.1: WP1 Preparing solutions						
A.1.3: Developing best fire extinguishing practices based on knowledge of waste fire emissions						
D.1.3: Environmental hazards on ignition of waste						

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 - Linnaeus University

Work package leader 2 PP 2 - Lund University

5.4 Work package budget

Work package budget 20%

5.4.1 Number of pilots

Number of pilots 3

5.5 Target groups

	Target group	How do you plan to reach out to and engage the target group?
1	Small and medium enterprise Waste management companies that are handling, sorting, transporting and storing waste and biofuels at Poland, Latvia, Lithuania, Sweden and even in the rest of EU. 163 / 500 characters	Sharing of results of pilot testing of early detection of waste fires with local authorities through seminars and workshops. 125 / 1,000 characters
2	Higher education and research institution Research Institutes and universities of Poland, Latvia, Lithuania and Sweden 76 / 500 characters	Sharing of results of pilot testing of early detection of waste fires with scientific community through seminars, workshops, web based tools, and by publishing articles. 169 / 1,000 characters
3	National public authority National authorities related to waste management and public safety at Poland, Latvia, Lithuania and Sweden 107 / 500 characters	Sharing of results of pilot testing of early detection of waste fires with national waste management authorities and fire rescue services community through seminars, workshops, web based tools, and by publishing articles. 221 / 1,000 characters
4	Business support organisation Business support organizations at Poland, Latvia, Lithuania and Sweden 70 / 500 characters	Pilot scale testing would be done in collaboration with Business support organization e.g. Winning Innovation at Lund AB, Sweden. 129 / 1,000 characters
5	Local public authority Different municipalities in Poland, Latvia, Lithuania and Sweden 64 / 500 characters	Sharing results with some large waste management companies that have been terribly effected from incidents of waste fires in the recent past shall be invited to participate in workshops and seminars. 200 / 1,000 characters

5.6 Activities, deliverables, outputs and timeline

No.	Name
2.1	**Pilot testing of geological techniques for monitoring of pilot scale heaps**
2.2	**Development and testing of Best Management Practices to avoid waste fires**
2.3	**Evaluating best extinguishing practices**

WP 2 Group of activities 2.1

5.6.1 Group of activities leader

Group of activities leader PP 2 - Lund University

A 2.1

5.6.2 Title of the group of activities

Pilot testing of geological techniques for monitoring of pilot scale heaps

74 / 100 characters

5.6.3 Description of the group of activities

The objective is to validate the use of geological technique for early detection of waste fires at a pilot scale under a specialized laboratory that is equipment with fume hood. In this pilot test beside smoldering hot-spots, other parameters e.g. moisture variation, moisture pockets, and temperature gradients within heap shall be monitored. These parameters have strong connection with the generation of smoldering hotspots, therefore this noninvasive technique could provide an inside picture of the stored material and could even help in identifying the specific sites in the stored material, where smoldering could start. The solutions developed in WP-1 shall help in pilot testing. At pilot testing focus shall be on geological sensitivity of smoldering hot spots (depth). Further, beside DCIP, multi-frequency Stångslingram will also be tested. The reason is that the method provides comparable data but is based on a different physical principles. In contrast to DCIP, stångslingram is based on electromegnatic waves and completely non-invasive. The use of multi-frequency Stångslingram shall help in interpretation of results obtained from DCIP.
The pilot testing of solutions would be rather expensive than that of small lab-scale experiments that shall be performed under WP-1, so 2-3 tests shall be performed for pilot testing. Further economic and practical usability of geological sensors for detection of waste fires will be explored. A possibility of comparative study of data of geological sensors with other conventional sensors (IR cameras and gas sensors) would be explored and discussion on perspectives of integrating different data will be made. Results shall be shared at workshops/conferences and peer reviewed scientific publications shall be produced for sharing the results with scientific community and other stakeholders in EU and rest of the world.

1,881 / 3,000 characters

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

☐

O 2.1

Title of the output

Advanced applied knowledge on the use of geological techniques for early detection of waste fires

97 / 100 characters

Description of the output

Better knowledge about monitoring the biological and chemical processes, and temperature transitions in the waste piles. This would help in determining the pros and cons, detection limit of this new technique, the storage conditions (particle size, moisture contents, size of heap etc) under which it works well and conditions under which this new technique has limitations. This would lead to development more sophisticated and intelligent model for prediction of smoldering fires.

One main output is it provides the knowledge to design the waste storage sites in a way that geological sensors could easily be installed and data could be collected and compiled easily.

675 / 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 Local public authority Different municipalities in Poland, Latvia, Lithuania and Sweden	Waste management companies would be able to use cost effective, non-invasive and efficient methods for early detection of waste fires. 134 / 1,000 characters
Target group 2 Small and medium enterprise Waste management companies that are handling, sorting, transporting and storing waste and biofuels at Poland, Latvia, Lithuania, Sweden and even in the rest of EU.	Municipalities could develop guidelines regarding preparation of waste storage grounds, storage methodology to be followed (e.g. particle size, storage foot-print area etc.) and could also develop better procedures for checking the compliance of guidelines. Similarly, fire rescue services resources could be used in a more efficient manner. Currently, it is impossible to identify the location of smoldering hot spots in large heaps of stored material (e.g.100m x 100m) and fire is identified only when smoldering turns into a flaming fire. With this project, It would be possible to identify the points in the stored heap at an early stage, and would help in saving the fire rescue resources. Also during fire fighting, risk would be less for injuries and fatalities. 770 / 1,000 characters
Target group 3 Higher education and research institution Research Institutes and universities of Poland, Latvia, Lithuania and Sweden	Research and education regarding safe handling of secondary raw materials and bio-fuels shall be promoted in the region and would help in introducing even new advancements in the future. 186 / 1,000 characters
Target group 4 National public authority National authorities related to waste management and public safety at Poland, Latvia, Lithuania and Sweden	National waste management association can also develop recommendations for the whole branch industry so that safety standards of whole branch industry get improve. 163 / 1,000 characters
Target group 5 Business support organisation Business support organizations at Poland, Latvia, Lithuania and Sweden	Business support organization can help in developing new business solution, which would create new jobs in the market. These new business can help in improving the health and safety standards within waste management sector. 223 / 1,000 characters

Durability of the output

With the development of new business models for early detection of waste fires, ensures that the knowledge produced under these group of activities would find a practical use. This is an indirect indication that outputs shall be highly durable.

245 / 1,000 characters

5.6.6 Timeline

	Period: 1	2	3	4	5	6
WP.2: WP2 Piloting and evaluating solutions						
A.2.1: Pilot testing of geological techniques for monitoring of pilot scale heaps						
O.2.1: Advanced applied knowledge on the use of geological techniques for early detection of waste fires						

5.6.7 This deliverable/output contains productive or infrastructure investment

WP 2 Group of activities 2.2

5.6.1 Group of activities leader

Group of activities leader PP 5 - Waste Management Association of Latvia

A 2.2

5.6.2 Title of the group of activities

Development and testing of Best Management Practices to avoid waste fires

73 / 100 characters

5.6.3 Description of the group of activities

Based on the waste fire perspective that will be developed in activity 1.1, best management practices for avoiding waste fires shall be developed and shall be pilot tested at one of the waste management site.

208 / 3,000 characters

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

O 2.2

Title of the output

Development of best management practices

40 / 100 characters

Description of the output

Best and innovative solutions from whole BSR region to avoid waste fires would be established and the potential remediation actions at process level and at system level would be developed in the form of best management practices (BMPs). The BMPs would cover broad perspective of waste fire incidents e.g. causes and pathways of fire incidents, strategies for avoiding the incidences and shortening the response time in case of any fire incidence, to develop comprehensive pollution prevention program, emergency management plan and communication plan with authorities in case of a waste fire incidents, strategies to avoid trans-boundary release of pollutants and joint strategies to cope such emergencies in BSR countries. Further, the protocols for incident reporting and incident investigation would be developed and solutions should be suggested so that, one one side, it is easy to report the incident and on the other hand, it also contains sufficient and meaningful information in a useful order so that it would help in improving the management of waste and reducing the risk of fires in future. so in short, one output is compilation of Best Management Practices for collection, compilation and verification of waste fire statistics

The analysis of influence of legislative instruments at national level and EU level related to waste management and effect of other "polluter pay principle" based regulations on waste flows, waste sorting, waste storage and risk of waste fires shall be developed and shared with all stakeholders. Further, current situation of infrastructure of waste handling in BSR, its shortcomings, and areas of improvements to avoid the waste fire incidents and to minimize the environmental consequences will be developed. The design perspectives of waste sites to limit the spread of waste fires and its environmental consequences shall be developed.

In short, main outputs of this activity are compilation of Best Management Practices to avoid waste fires at process level and at system level in BSR, organization of national and international workshops and seminars to spread the knowledge with all relevant stakeholders and production of research articles and reports to be shared with all relevant stakeholders.

2,250 / 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 Small and medium enterprise Waste management companies that are handling, sorting, transporting and storing waste and biofuels at Poland, Latvia, Lithuania, Sweden and even in the rest of EU.	This would help in development of regulations and guidelines that municipalities could enforce and check the compliance. In the past year, several incidents were observed in which municipalities and waste management companies concluded that regulations are ambiguous. In this scenario, several incidents are reported in which decisions made by municipalities are claimed illegal by waste management companies. Implementation and pilot testing of best management practices would help in revamping the waste storage guidelines in the whole region. All stakeholders would have trust on the best management practices that develop out of knowledge obtained from whole BSR region. 674 / 1,000 characters
Target group 2 National public authority National authorities related to waste management and public safety at Poland, Latvia, Lithuania and Sweden	National waste management association would be able to develop guidelines and recommendations for the whole branch industry that would help in improving the occupational safety and health standards in the branch industries. 223 / 1,000 characters
Target group 3 Higher education and research institution Research Institutes and universities of Poland, Latvia, Lithuania and Sweden	Students with deeper and broader knowledge would be produced that will be an asset for the companies in waste management sector. Research will also be promoted in the region and this would have a long term impact on the whole branch industry. 243 / 1,000 characters
Target group 4 Local public authority Different municipalities in Poland, Latvia, Lithuania and Sweden	Waste management companies would be able to employ best management practices based on the knowledge produced from the WP-1. This would promote the health and safety culture in the waste business. 195 / 1,000 characters

Durability of the output

The best management practices that would be developed based on past experience of waste fires in whole BSR region is a strong foundation stone for improving the occupational health and safety culture in the waste management sector. The involvement of all stakeholder shall make it a self-sustained process, where a continuous improvement in the safety culture will keep on taking place even after end of the project.

416 / 1,000 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.2: WP2 Piloting and evaluating solutions						
A.2.2: Development and testing of Best Management Practices to avoid waste fires						
O.2.2: Development of best management practices						

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 - The Main School of Fire Service

A 2.3

5.6.2 Title of the group of activities

Evaluating best extinguishing practices

39 / 100 characters

5.6.3 Description of the group of activities

The waste fire scenarios evaluated at WP1.3 in the laboratory scale have to be evaluated on a pilot scale. The atmospheric impact of the waste fires will be evaluated in test fires prepared at the training grounds and big scale laboratories of partners involved in the project. The activities will cover evaluation of the waste fires emission, apportionment of waste fires as a source of atmospheric pollution, sampling of the extinguishing material (water, foam, powder), and its analysis of their environmental impact. Therefore, real-scale experiments of waste fires with different waste fractions will result in the development of science-based extinguishing guidelines for the mitigation of environmental impacts of waste fires. In this regard, the elemental composition of the PM emitted during test fires and field experiments are essential for determining the source apportionment.

890 / 3,000 characters

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

O 2.3

Title of the output

Exemplary, best practices on environmental protection during extinguishing waste fires

86 / 100 characters

Description of the output

The output will use the results of WP1.3 to provide the best management practices (BMPs) for extinguishing waste fires. The output will be a science-based set of rules, and recommendations, based on the laboratory science results and on-field experiments. The output will cover all emissions discussed in WP1.3, their impact on public health, and the environment, and strategies for mitigating negative impacts shall be developed. In general, this output shall provide the knowledge about toxicity of emissions to air, water and soil as a result of waste fires. The knowledge will be of high practical use for fire rescue services and waste management companies to make right fire extinguishing choices based on the combustion conditions (smoldering, incipient fire (growth stage), free burning (fully developed fire) and material properties (e.g. type of material) etc. so that there is least damage to environment. Secondly, a deeper awareness of health hazards posed to fire rescue and employees at waste sites and needs of right choices for personal protective equipment shall be developed.

1,095 / 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 Small and medium enterprise Waste management companies that are handling, sorting, transporting and storing waste and biofuels at Poland, Latvia, Lithuania, Sweden and even in the rest of EU.	This target group will use it mainly in the prevention of waste fires. The local public authorities will use the results of the project in urban planning, zoning, and evaluating possible environmental impact in case of waste fire. Moreover, the local emergency management organization will utilize output both to prepare the emergency plans for the waste facilities as well as during the rescue. 396 / 1,000 characters
Target group 2 National public authority National authorities related to waste management and public safety at Poland, Latvia, Lithuania and Sweden	This group will use it both in mitigating and preventing waste fires. The fire brigades will benefit in everyday work by assessing, according to this output, what would be the best way of extinguishing a given waste fire according to its environmental impact. The environmental protection agencies can benefit from consulting waste facilities requiring environmental impact assessment procedures. The output can lead to better protection and prevention of waste fires. The governmental agencies can start to prepare new regulations for waste storage and monitoring of waste storage yards in order to prevent fire risks. 624 / 1,000 characters
Target group 3 Higher education and research institution Research Institutes and universities of Poland, Latvia, Lithuania and Sweden	The research institutions will benefit from the laboratory and field evaluated results of the project and could define new pathways of R&D including both preparation of tactics, development of environmentally friendly extinguishing materials, and many others. 260 / 1,000 characters

Durability of the output

The output will have long-term durability. The scale of tests and evaluation of scientific results will ensure that results could be used for many years. An only future very significant advance in measurement techniques, providing a few orders of magnitude jump in precision can limit the durability of the output, however, the project incorporates the current most advanced equipment hence it will not happen in the time of dozen years.

437 / 1,000 characters

5.6.6 Timeline

Period:	1	2	3	4	5	6
WP.2: WP2 Piloting and evaluating solutions						
A.2.3: Evaluating best extinguishing practices						
O.2.3: Exemplary, best practices on environmental protection during extinguishing waste fires						

5.6.7 This deliverable/output contains productive or infrastructure investment

Work package 3

5.1 WP3 Transferring solutions

5.2 Aim of the work package

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

5.3 Work package leader

Work package leader 1 PP 1 - Linnaeus University

Work package leader 2 PP 3 - AGH University of Science and Technology

5.4 Work package budget

Work package budget 20%

5.5 Target groups

	Target group	How do you plan to reach out to and engage the target group?
1	Small and medium enterprise Waste management companies that are handling, sorting, transporting and storing waste and biofuels at Poland, Latvia, Lithuania, Sweden and even in the rest of EU. 163 / 500 characters	Results shall be shared with municipal authorities through workshops, webinars, web tools and though articles in popular scientific magazines 141 / 1,000 characters
2	Higher education and research institution Research Institutes and universities of Poland, Latvia, Lithuania and Sweden 76 / 500 characters	Results shall be shared with Higher Education Institutes in BSR region in particular and also around the world through workshops, webinars, web tools and though peer reviewed scientific articles. 195 / 1,000 characters
3	National public authority National authorities related to waste management and public safety at Poland, Latvia, Lithuania and Sweden 107 / 500 characters	Results shall be shared with waste management associations and fire rescue community through workshops, webinars, web tools and though articles in popular scientific magazines 175 / 1,000 characters
4	Business support organisation Business support organizations at Poland, Latvia, Lithuania and Sweden 70 / 500 characters	Results shall be shared with business support organizations in all partner countries 84 / 1,000 characters
5	Local public authority Different municipalities in Poland, Latvia, Lithuania and Sweden 64 / 500 characters	Representatives of some large waste management companies that have been terribly effected from incidents of waste fires in the recent past shall be invited to participate in workshops and seminars. One of the project partner is KSRR AB Sweden. 243 / 1,000 characters

5.6 Activities, deliverables, outputs and timeline

No.	Name
3.1	**Development of a resilient waste sector in BSR with reduce risk of waste fires & its consequences**

WP 3 Group of activities 3.1

5.6.1 Group of activities leader

Group of activities leader PP 1 - Linnaeus University

A 3.1

5.6.2 Title of the group of activities

Development of a resilient waste sector in BSR with reduce risk of waste fires & its consequences

97 / 100 characters

5.6.3 Description of the group of activities

Here aim is to transfer the ready solutions to all target groups and to support them in implementing the solutions. This work package shall start right from period-2 to period-6. All stakeholders shall be involved through out in the project activities and workshops/seminars shall be conducted intermittently with two core objectives. First, to immediately transfer the knowledge produced from the project to relevant stakeholders and see the progress, and secondly, to take inputs of stakeholders in planing and implementation of upcoming project activities, and to conduct brain storming sessions.

A continuous involvement of stakeholders is necessary to ensure that the best management practices (BMPs) are technologically sound, are cost-effective manner, and are easy to implement. The BMPs would cover broad perspective of waste fire incidents e.g. causes and pathways of fire incidents, strategies for avoiding the incidences and shortening the response time in case of any fire incidence, to develop comprehensive pollution prevention program, emergency management plan and communication plan with authorities in case of a waste fire incidents, strategies to avoid trans-boundary release of pollutants and joint strategies to cope such emergencies. Further, the protocols for incident reporting and incident investigation would be studied in BSR region and solutions should be suggested so that, one one side, it is easy to report the incident and on the other hand, it also contains sufficient and meaningful information in a useful order so that it would help in improving the management of waste and reducing the risk of fires in future.

The activities will cover:
-presentations and demonstrations of best management practices to avoid risk of waste fires in BSR;
-presentations and demonstrations of new and innovative methods for early detection of waste fires;
-presentations and demonstrations at fire stations, which were involved in waste fires' extinguishingng in BSR;
-international seminar for scientists, business representatives, local and national authorities of BSR states;
-presentations and demonstrations at waste management facilities across BSR;
-workshops at fire training centres;
-prepartion of teaching material/textbook, scientific articles, monographs or set of lectures about BMPs.

The presentations at fire station, which in past were involved in waste fire extinguishing will lead to mutual cooperation of firefighters from BSR. The authorities will be able to asses the risk of waste fires including projects results and will be able to prepare better law to prevent the emerging problem of waste fires. The textbook for the future fire commanders will have a long term significant impact on BSR states Fire Safety.

2,765 / 3,000 characters

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

O 3.1

Title of the output

Innovative business models for handling waste fires

51 / 100 characters

Description of the output

This is the final output of the project. This output covers the all three life stages of waste fires i.e. pre-ignition, ignition and extinction phase. The "pre-ignition" stage is related to development of best management practices so that incidents of waste fires could be avoided from happening. The "ignition-phase" is related to early detection of waste fires so that environmental and economic losses could be avoided by preventing the smoldering fires to turn into flaming fires, which have very high flame spread rate and that even cause to ignition of secondary fires (structural fires, forest fires, secondary waste fires). The "extinction stage" is related to develop of best management practices (BMPs) for extinguishing waste fires with least environmental consequences. This output is amalgam of best management practices that covers these three life stages of waste fires.

The BMPs would cover broad perspective of waste fire incidents e.g. causes and pathways of fire incidents, strategies for avoiding the incidences and shortening the response time in case of any fire incidence, to develop comprehensive pollution prevention program, emergency management plan and communication plan with authorities in case of a waste fire incidents, strategies to avoid trans-boundary release of pollutants and joint strategies to cope such emergencies. Further, the protocols for incident reporting and incident investigation would be studied in BSR region and solutions should be suggested so that, one one side, it is easy to report the incident and on the other hand, it also contains sufficient and meaningful information in a useful order so that it would help in improving the management of waste and reducing the risk of fires in future.

1,749 / 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 National authorities related to waste management and public safety at Poland, Latvia, Lithuania and Sweden	The authorities related to fire safety (e.g. fire rescue services) and waste management associations could develop recommendations and guidelines keeping in view of three life-stages of waste fires. 198 / 1,000 characters
Target group 2 Local public authority Different municipalities in Poland, Latvia, Lithuania and Sweden	The knowledge produced from the project is of direct use for waste management companies and would help in improving the daily work situation. Employees could avoid dangerous, life threatening situation of waste fires. There would be less risk for whole waste handling site to engulf in fire as it is observed in several recent incidents of waste fires, which resulted in complete destruction of whole waste handling sites. Through development of best extinguishing methods for waste fires, there would be less health hazards for public living nearby waste handling sites as there would be less risk for contamination of ground water as a result of release of pollutants with fire extinguishing water. 700 / 1,000 characters
Target group 3 Small and medium enterprise Waste management companies that are handling, sorting, transporting and storing waste and biofuels at Poland, Latvia, Lithuania, Sweden and even in the rest of EU.	Municipalities would be able to develop guidelines to issue license to waste companies, can plan emergency management plan, and can check compliance of guidelines. 164 / 1,000 characters
Target group 4 Business support organisation Business support organizations at Poland, Latvia, Lithuania and Sweden	Business support organizations can develop new business models that can develop additional support structure for the companies operating in the waste sector. It would create new jobs and new business opportunities in the BSR countries. 236 / 1,000 characters
Target group 5 Higher education and research institution Research Institutes and universities of Poland, Latvia, Lithuania and Sweden	With promotion of research and education on safe handling of waste fuels that contributes towards achieving the circular economy objectives in true sense shall be an example for the whole world. It will be a source of attraction for young researchers and students, and this would eventually ensure the continuous supply of well educated workforce for the waste management sector in BSR region. 393 / 1,000 characters

Durability of the output

The development and pilot testing of best management practices would be a source of inspiration for all the stake holders associated with waste sector and would act as a chain reaction to help in improving the occupational safety and health standards in the waste management sector. Several reports has been published by a range of stakeholder (fire rescue services, waste management companies etc.) where immediate need of addressing the issue of waste fires is highlighted. The project would help in fulfilling the dire needs of waste management sector and knowledge produced will be a hot cake for all stakeholders and expected to be adopted by the industry. Usage of the output in training of the officers training (textbooks, lectures) will make the long-living durability output without any additional costs after the end of the project.

844 / 1,000 characters

5.6.6 Timeline

	Period: 1	2	3	4	5	6
WP.3: WP3 Transferring solutions						
A.3.1: Development of a resilient waste sector in BSR with reduce risk of waste fires & its consequences						
O.3.1: Innovative business models for handling waste fires						

5.6.7 This deliverable/output contains productive or infrastructure investment ☐

6. Indicators

Indicators

Output indicators				Result indicators		
Output indicators	**Total target value in number**	**Project outputs**	**Please explain how the solution presented in this output serves the target group(s).**	**Result indicator**	**Total target value in number**	**Please explain how organisations in the target groups within or outside the partnership will take up or upscale each solution.**
RCO 84 – Pilot actions developed jointly and implemented in projects	3	N/A	N/A	**RCR 104 - Solutions taken up or up-scaled by organisations**	4	Solutions for right sorting of waste in view of hazards of waste fires shall be implemented together with management companies that are operating within each partner company. Solutions regarding early detection of waste fires shall be upscaled and tested only at of the selected site in order to be cost effective. However, participation of partner countries shall be ensured and results would shared with business development organization that are operating in respective partner countries so that solutions could be materialized in the whole BSR countries. 558 / 2,000 characters
RCO 116 – Jointly developed solutions	4	O.2.1: Advanced applied knowledge on the use of geological techniques for early detection of waste fires	The solutions shall help all stakeholders in diverse ways e.g. municipalities would implement proposed solutions that would enhance occupational and public safety and health. The proposed solutions shall help fire rescue services to efficiently plan and implement fire rescue operations. The solutions would help waste management companies to ensure the uninterrupted their daily work activities with reduced risk of waste fires and its consequences. The solutions provided shall trigger more research activities and would act as foundation stone for developing more sophisticated and smart solutions for safe handling of waste and bio-fuels. The project is also expected to develop new business models and would help in job creation. 736 / 1,000 characters			
		O.2.2: Development of best management practices	The solutions shall help municipalities, national waste management association and national environmental bodies to develop national guidelines for safe handling and storage of waste for avoiding waste fire incidents. The proposed solutions shall also help fire rescue services to develop training modules to handle waste fires that are much different from structural and forest fires. 387 / 1,000 characters			
		O.2.3: Exemplary, best practices on environmental protection during extinguishing waste fires	The solution will provide new ideas of environmental-friendly fire extinguishing practices in different contexts. Moreover, the methods of environmental impact assessment of landfill fires on a local scale which were developed recently can be upscaled for an application in whole BSR which would not be possible without the INTERREG financing. 343 / 1,000 characters			

Output indicators	Total target value in number	Project outputs	Please explain how the solution presented in this output serves the target group(s).
		O.3.1: Innovative business models for handling waste fires	The project leads to development of new unique solutions for prevention and mitigation of waste fires and its consequences. The solutions covers the all life stages of waste fires i.e. pre-ignition, ignitoin and post ignition (extinction) stage, and would lead to develop of new business models and would lead to generation of new jobs in waste management sector in BSR. 370 / 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	12	**PSR 1 - Organisations with increased institutional capacity due to their participation in cooperation activities across borders**	12	Project partners and associated organisations	Most of waste management companies that are operating in partner countries are members of national waste management associations (NWMA). These NWMAs often issues guidelines for various aspects related to waste management. The involvement of MWMA's from respective countries in the project would enhance their capacity to improve the safety standards of waste management companies in each country. 398 / 1,500 characters
				Other organisations	Fire rescue services are directly exposed to toxic emissions during waste fire extinguishing. The knowledge produced from the project is expected to transform the fire extinguishing protocols. Today, fire rescue services are educated to tackle ordinary structural fires, and they have little knowledge of handling waste fires. It is observed in several past incidents that a waste fire reignited after the initial extinguishing. The involvement of fire rescue services would enhance their capacity to extinguish these new types of fires in our society that are becoming more common. This project would develop and increase cross-border cooperation between fire rescue services of different BSR countries. Since the recycling industry is flourishing with increased generation of waste in BSR, it is expected that the waste fires will be more frequent and thus, such cross-border cooperation is essential to overcome this challenge. Emissions from waste fires are a transboundary problem and will be addressed in A.1.3 and O.2.3. Recent works highlighted that air pollution from waste fires should be analyzed in the context of regions, not only countries. The state agencies, responsible for environmental safety, can benefit from common cooperation methods and mutual warnings about the waste fire incidents and their possible impacts. The lawmakers, that are responsible for waste management and public safety, will have scientific-based evidence, for joint preparation of common procedures in BSR 1,500 / 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	Linnaeus University	Active 22/09/2022	129,258.00	19,388.70	19,388.70
2 - PP	Lund University	Active 22/09/2022	107,713.00	16,156.95	16,156.95
3 - PP	AGH University of Science and Technology	Active 22/09/2022	106,592.42	15,988.86	15,988.86
4 - PP	The Main School of Fire Service	Active 22/09/2022	125,956.36	18,893.45	18,893.45
5 - PP	Waste Management Association of Latvia	Active 22/09/2022	48,250.00	7,237.50	7,237.50
6 - PP	Administration of Silale's district municipality	Active 22/09/2022	12,000.00	1,800.00	1,800.00
Total			529,769.78	79,465.46	79,465.46

No. & role	Partner name	CAT4 - External expertise & services	CAT5 - Equipment	Total partner budget
1 - LP	Linnaeus University	97,800.00	0.00	265,835.40
2 - PP	Lund University	0.00	20,360.00	160,386.90
3 - PP	AGH University of Science and Technology	8,000.00	85,000.00	231,570.14
4 - PP	The Main School of Fire Service	20,000.00	285,000.00	468,743.26
5 - PP	Waste Management Association of Latvia	2,275.00	0.00	65,000.00
6 - PP	Administration of Silale's district municipality	0.00	0.00	15,600.00
Total		128,075.00	390,360.00	1,207,135.70

7.1.1 External expertise and services

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value
4. The Main School	Specialist support	CAT4-PP4-E-0	External analysis of samples (28 / 100 characters)	No	1.3	20,000.00
3. AGH University o	Events/meetings	CAT4-PP3-A-0	Organising an international seminar (35 / 100 characters)	No	3.1	8,000.00
5. Waste Managem	Events/meetings	CAT4-PP5-A-0	Organization of dissemination (seminar) (40 / 100 characters)	No	3.1	1,000.00
5. Waste Managem	Specialist support	CAT4-PP5-E-0	Expert on fireworks (19 / 100 characters)	No	1.1	1,275.00
1. Linnaeus Universi	Specialist support	CAT4-PP1-E-0	Geological Instumentation for fire detection (44 / 100 characters)	No	1.2	97,800.00
	Total					128,075.00

7.1.2 Equipment

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value
4. The Main School	Laboratory equipmen	CAT5-PP4-D-0	Continuous elemental and particulate mass analysis with automatic sampling with X-ray (85 / 100 characters)	No	1.3	280,000.00
4. The Main School	Other specific equip	CAT5-PP4-H-0	Materials to be burned during experiments (41 / 100 characters)	No	1.3	5,000.00
3. AGH University o	Laboratory equipmen	CAT5-PP3-D-0	HPLC High-performance liquid chromatography (44 / 100 characters)	No	1.3	45,000.00
3. AGH University o	Laboratory equipmen	CAT5-PP3-D-0	Autosampler, reagents (22 / 100 characters)	No	1.3	40,000.00
2. Lund University	Laboratory equipmen	CAT5-PP2-D-0	Characterization of fire properties and emissions in heaps during fire spread (77 / 100 characters)	No	1.2 2.1	20,360.00
	Total					390,360.00

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	Linnaeus University	Active 22/09/2022	SE	ERDF	80.00 %	265,835.40	212,668.32	53,167.08	For each partner, the State aid relevance and applied aid measure are defined in the **State aid section**
2-PP	Lund University	Active 22/09/2022	SE	ERDF	80.00 %	160,386.90	128,309.52	32,077.38	
3-PP	AGH University of Science and Technology	Active 22/09/2022	PL	ERDF	80.00 %	231,570.14	185,256.11	46,314.03	
4-PP	The Main School of Fire Service	Active 22/09/2022	PL	ERDF	80.00 %	468,743.26	374,994.60	93,748.66	
5-PP	Waste Management Association of Latvia	Active 22/09/2022	LV	ERDF	80.00 %	65,000.00	52,000.00	13,000.00	
6-PP	Administration of Silale's district municipality	Active 22/09/2022	LT	ERDF	80.00 %	15,600.00	12,480.00	3,120.00	
Total ERDF						1,207,135.70	965,708.55	241,427.15	
Total						1,207,135.70	965,708.55	241,427.15	

7.3 Spending plan per reporting period

	EU partners (ERDF)		Total	
	Total	Programme co-financing	Total	Programme co-financing
Period 1	490,530.56	392,424.45	490,530.56	392,424.45
Period 2	136,035.70	108,828.56	136,035.70	108,828.56
Period 3	145,435.70	116,348.56	145,435.70	116,348.56
Period 4	160,031.36	128,025.08	160,031.36	128,025.08
Period 5	134,036.19	107,228.95	134,036.19	107,228.95
Period 6	141,066.19	112,852.95	141,066.19	112,852.95
Total	1,207,135.70	965,708.55	1,207,135.70	965,708.55