REPAiR

REsource Management in Peri-urban AReas: Going Beyond Urban Metabolism

D8.12 Dissemination and Exploitation Report

Version 2.0

Author(s): Denis Cerić (IGiPZ), Alexander Wandl (TUD)

Grant Agreement No.:	688920
Programme call:	H2020-WASTE-2015-two-stage
Type of action:	RIA – Research & Innovation Action
Project Start Date:	01-09-2016
Duration:	48 months
Deliverable Lead Beneficiary:	TUD
Dissemination Level:	PU
Contact of responsible author:	d.ceric@twarda.pan.pl

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 688920.

Dissemination level:
- PU = public
- CO = Confidential, only for members of the consortium (including the Commission Services)

Change control

VERSION	DATE	AUTHOR	ORGANISATION	DESCRIPTION / COMMENTS
1.0	18-12-2020	Denis Cerić	IGiPZ	Setup of document structure
1.1	25-12-2020	Denis Cerić	IGiPZ	First Draft Version
1.2	29-12-2020	Alexander Wandl	TUD	Exploitation
1.3	30-12-2020	Denis Cerić	IGiPZ	Chapters 4, 5 & 6
2.0	31-12-2020	Alexander Wandl	TUD	Final Editing

Acronyms and Abbreviations

CE	Circular Economy
CINDERELA	Project New Circular Economy Business Model for More Sustainable Urban Construction
COVID-19	Coronavirus disease 2019
EIS	Eco-Innovative Solutions
FORCE	Project Cities Cooperating for Circular Economy
GDSE	Geodesign Decision Support Environment
H2020	Horizon 2020
IGiPZ	Institute of Geography and Spatial Organisation Polish Academy of Sciences
IT	Information Technology
PULL	Peri-Urban Living Labs
TUD	Delft University of Technology
UrbanWINS	Project Innovative Strategic Plans for Urban Waste Reduction and Management
WP	Work Package
IP	Intellectual property
UNINA	University of Naples Federico II
4TU	Cooperation of TU Delft, Eindhoven University of Technology, University of Twente and University of Wageningen

Table of Contents

Publishable Summary

The REPAIR Dissemination and Exploitation Report provides the reader with an overview of the results of the dissemination and exploitation activities.

The Report gives a descriptive and statistical inside in REPAiR scientific publications, activities performed within the project, targets being reached, website and social media statistics. The final part gives an overview of exploitation activities.

The key dissemination channel of REPAiR is the project web page www.h2020repair.eu. There the online handbook of knowledge transfer in 6 different languages, and an in-depth visual explanation of the REPAiR Peri-Urban Living Labs (PULLs) method as well as the online catalogue of Eco-Innovative Solutions (EIS), can be found.

In total, 70 authors contributed, until December 2020, to 44 open access scientific articles, almost all in peer-reviewed journals. Also, those are available via the project web page.

REPAiR generated five exploitable products of REPAiR, which are

- The Geodesign Decision Support Environment(GDSE) as whole or specific modules and manuals on installation, adaptation, and use;
- The sustainability assessment framework and the related open LCA module;
- The co-creation methodology implemented in Peri-Urban Living Labs and the related online handbook.
- The developed Eco-innovative solutions and the related online handbook;
- The knowledge transfer methodology and the related online handbook;

All of them were either used or further developed in the case study cites of REPAiR, while further developing their circular economy policies or by other national and international research projects.

The REPAiR Final Event took place at the 13th of October 2020. According to registration, there were 268 attendees present: 157 representing scientific community (59%), 30 policymakers (11%), 23 industry (9%), 11 civil society (4%), 11 general public (4%), and 36 other (13%). Attendees joined form at least 27 countries, all over the World. The Final Event was recorded, and these videos together with the full programme, short biographies of the speakers, and links to the presentations are available for downloaded the REPAiR website.

The REPAiR Team also produced an online exhibition to present the results of the REPAiR project in an appealing way. In this next-generation experience, visitors may learn all about CE contexts and solutions coming out of the REPAiR project.

The project REPAiR spectrum of activities reached almost 150 000 persons within 52 months of the project duration. The results of REPAiR was presented at 129 scientific conferences organised in 27 different countries and online, all around the World. In total, 4 REPAiR related conferences were organised by consortium members.

1. Introduction

The REPAIR Dissemination and Exploitation Report has been created as part of Work Package 8 – Dissemination and Exploitation. The lead participant of this WP is the Institute of Geography and Spatial Organization, Polish Academy of Sciences (IGiPZ), also responsible for 4 of 7 tasks. The task leader for two tasks was Delft University of Technology (TUD) and for 1 task, the University of Naples Federico II (UNINA).

The overall aim of work package Dissemination and Exploitation was to maximise the impact of REPAiR's results. Its objectives were to:

- Deliver the dissemination and exploitation strategies and extend the outreach of the project;
- Ensure the transfer of knowledge and expertise to the identified target groups;
- Ensure the intellectual property management (IP), including data management and the fulfilment of the general principles regarding the protection and exploitation of the foreground IP;
- Prepare the path for future uptake of the GDSE tool and ensure utilisation of the project's results.

The importance of disseminating and exploiting the REPAiR results was recognised, and several actions and mechanisms have been put in place to achieve this. To achieve these objectives, the dissemination and exploitation activities of the project were coordinated and monitored by the dissemination manager (Denis Cerić, IGiPZ), and the exploitation manager, respectively.

The Report firstly focuses on the description of tasks, work, deliverables and milestones within the WP8. Afterwards, the Report gives a descriptive and statistical inside in REPAiR scientific publications, activities performed within the project, targets being reached, website and social media statistics. The final part gives an overview of exploitation activities.

2. Description of tasks, work and deliverables within the WP8

The REPAiR's WP8 consisted of 7 tasks, 12 deliverables and 3 milestones. In this chapter, each of the tasks is presented firstly as declared in the project proposal, while the work being done, the task's connections with the deliverable(s), and milestones are described after the proposal's description.

TASK NUMBER	TASK TITLE	TASK LEADER	DUE DATE (IN MONTHS)	TASK DESCRIPTION (FROM THE PROJECT PROPOSAL)
8.1	Internal guidelines for dissemination	IGiPZ	1-3	Task 8.1 will define common principles of internal communication throughout the project lifetime. For each deliverable, it shall specify the communication channels, targeted end-users and responsible partner(s). The Internal communication plan (ICP) will be a living document accessible to all partners via the project's website and regularly updated in the periods corresponding to the project's milestones.

Between September and November 2016, the task leader IGiPZ, together with TUD, UNINA, OVAM, HCU, RKI, BIOKOM and UGent have compiled deliverable D8.2. Communication Handbook, where the principles of internal and external communication have been defined. Communication managers have been appointed (one per work package) in order to make communication faster. The Internal Communication Plan for efficient transfer of information between WP team members and dissemination and Exploitation Manager, as well as target groups has been developed, and a number of tailored external communication channels, which can be classified as direct or indirect, have been linked to the dissemination activities' groups and target groups.

TASK NUMBER	TASK TITLE	TASK LEADER	DUE DATE (IN MONTHS)	TASK DESCRIPTION (FROM THE PROJECT PROPOSAL)
8.2	Development of Corporate identity	UNINA	1-2	This task is related to elaboration of the corporate identity including (1) definition of guidelines in terms of corporate design (logo, tag lines, colours, font, graphics); (2) creation of identity materials and layouts for communication deliverables which correspond to the identified types of end-users; (3) outline of how these materials should be used in the promotion and presentation of the project.

During September and October 2016, the task leader UNINA has prepared and consulted with the partners the deliverable D 8.1 Corporate Identity, which covered detail elaboration as stated in the proposal. With the creation of this deliverable, the milestone MS30 (Basic dissemination kit ready to use) has been achieved. The deliverable was revised during the project, according to adaptation needs asked for by different partners.

TASK NUMBER	TASK TITLE	TASK LEADER	DUE DATE (IN MONTHS)	TASK DESCRIPTION (FROM THE PROJECT PROPOSAL)
8.3	Development of the dissemination plan and dissemination kit	IGiPZ	1-3 & 19-20	The dissemination plan will match particular channels of dissemination (website, newsletter, workshops, scientific conferences, etc.) with the deliverables (reports, scientific articles, features in online and printed media, handbook, software) and with the identified groups of end-users (academics, practitioners, NGO's and students). This will ensure that the results of the project (at any stage) are shared with appropriate audiences and in a comprehensible manner. A basis dissemination kit will be delivered along with the detailed dissemination plan. A comprehensive dissemination kit will be delivered at the end of the project. It will provide a comprehensive package of PR material, explaining the essence of the REPAiR project and including, among other things, the descriptions of the project results, visual materials (infographics, pictures) and videos to communicate the REPAiR project in the broadest sense.

Between September and October 2016 the deliverable D 8.3 Basic Dissemination plan was created. Key REPAiR audiences, dissemination channels, and measurements of dissemination success have been defined. All Consortium Partners were asked to contribute with the planned activities which will disseminate REPAiR from their side for the period until the end of 2017. The Basic Dissemination Plan has been established as a living document which evolves and becomes more precise and substantial during the lifespan of the project. Between June and August, 2017 task leader IGiPZ has prepared the strategic document Detailed Dissemination Plan and Dissemination Kit (D 8.6), which is a detailed version of Basic Dissemination Plan and Corporate Identity (deliverables D 8.3 and D 8.1). In order to prepare a detailed plan, all consortium partners contributed with their proposals of activities which can help disseminate REPAiR and its results. This contribution was gathered during June, July and August 2017. The overall idea was to

regularly update the plan. Within the last year, the plan has not been updated. However, the number of activities besides the COVID-19 pandemic was higher than planned in the first place.

TASK NUMBER	TASK TITLE	TASK LEADER	DUE DATE (IN MONTHS)	TASK DESCRIPTION (FROM THE PROJECT PROPOSAL)
8.4	REPAiR project website	IGiPZ	1-48	This task will establish the project's website. The website will, above all provide a principal channel for dissemination and exploitation. It will include project presentation, open-access documents (project reports, GDSE manual, knowledge transfer handbook, papers, etc.), downloadable GDSE software package, links to related projects, news section, etc. It will also include an embedded social media component and regularly updated project news, coupled with a calendar of the events organised as part of REPAiR. Finally, it will provide a platform for internal exchange and collaboration within the project consortium.

The creation of the draft REPAiR website by TUD in October 2016 presented achieving the work package milestone – MS29 (Draft REPAiR website up and running). The website was registered under the .eu domain. The official website address is: www.h2020repair.eu.

Between November 2016 and February 2017, the task leader IGiPZ consult the structure and the content of the website with consortium members, conduct inquiries and choose the professional developer. The project website was prepared to contain principal information about the project, its objectives, publishable results, list of partners and events, and copies of public deliverables and any documents that are declared as public by the consortium (more details on content in deliverable D 8.5 Project website). The website contains subscription for the newsletter as well as links to REPAiR's profile on easily accessible commonly known and recognised social networking sites: Facebook, Twitter, LinkedIn, Google+, Research Gate and Academia.edu). The website was set up and administered by the IGiPZ. However, during the REPAiR Executive Board meeting in Hamburg (April 2017), IGiPZ team proposed re-design of the website, in order to make it more dynamic and modern. The re-design took place during the summer of 2017. The content of the website is provided by IGiPZ (coordinator) and the consortium members and is updated regularly. Meetings and email communication have been used to bring the website under the attention of the consortium, and to ask for (additional) inputs for the content. The latest re-design of the website took place in the pandemic 2020 when the REPAiR Executive Board decided to use extended online possibilities of the website to prepare more user-friendly presentation of the project results. The work on the REPAiR

online handbook of knowledge transfer in 6 different languages, and an in-depth visual explanation of REPAiR Peri-Urban Living Labs (PULLs) & online catalogue of Eco-Innovative Solutions (EIS), required additional professional involvement, and larger place on the server. In the end, REPAiR website serves as a window to all REPAiR results for additional 5 years, after the project finishes.

TASK NUMBER	TASK TITLE	TASK LEADER	DUE DATE (IN MONTHS)	TASK DESCRIPTION (FROM THE PROJECT PROPOSAL)
8.5	Data management	TUD	1-48	For each data type generated by the project, a widely used, open and easy-to-share file format will be used to store the data in the OpenEarth DataLab (see 2.2.4). The research data gathered will be described in a data management plan that will be delivered early on in the project's timeline, following the guidelines set by the European Commission, and updated over the course of the project. Since the project data management plan is expected to mature during the course of the project, a more updated version of the plan will be developed in the middle of the project. A final version of the plan, which will include information about how these data will be exploited and/or shared/made accessible for verification and re-use, and how this data will be curated and preserved, will be developed at the end of the project. The purpose of the data management plan within REPAiR is to support the data management life cycle for all data that will be collected, processed or generated.

The TUD team lead task 8.5 Data Management, supported by five consortium partners: UNINA, RKI, HCU, IGiPZ, and Ughent. The deliverable D 8.4 Draft Research Data Management Plan (confidential) was developed in February 2017, with the purpose to support the data management lifecycle for all data that will be collected, processed or generated within the REPAiR project. The Data Management Plan provided a draft summary of the main elements of the data management policy that was used throughout the REPAiR project by the project partners, with regard to all the data that were generated by the project. At the end of the project, in December 2020, the deliverable D8.11 Final data management plan was created, where it was explained how project data

were exploited and/or shared/made accessible for verification and re-use, and how this data was curated, preserved and developed at the end of the project. The purpose of the data management plan within REPAiR was to support the data management life cycle for all data that were collected, processed or generated. The open data generated by REPAiR is stored at the 4Tu data centre.

TASK NUMBER	TASK TITLE	TASK LEADER	DUE DATE (IN MONTHS)	TASK DESCRIPTION (FROM THE PROJECT PROPOSAL)
8.6	Promotion and external dissemination of the project's results	IGiPZ	8-48	This task will entail raising awareness and dissemination of REPAiR's research approach and scientific and technical results to the key target audiences, which requires an accurate adaptation of the channels of dissemination and its forms.

This task was coordinated by IGiPZ, while all consortium partners contributed. The aim of the task was to raise awareness and dissemination of REPAiR's research approach and scientific and technical results to the key target audiences. This task was covering the entire duration of the project, and four deliverables are linked to it: D 8.7 Scientific publications, D 8.8 Participation in and/or organisation of workshops, press conferences, stakeholder events, policy-oriented seminars, D8.10 Dissemination Kit, and this deliverable (D8.12 Dissemination and Exploitation Report).

Task leader IGiPZ kept the records on planned dissemination activities and reports of held activities, while Executive Board took decisions on important issues such as proposing an organisation of a conference, a session at the conference or event, editing a special issue of the scientific journal, or joining various associations, such as Circular Economy Club, i.e.

The list of REPAiR publications hyperlinked to the documents both in source and deposited within the project website can be found via the REPAiR website section scientific papers. Detailed statistics are presented in this deliverable, under the chapter Publications. Information on participation and organisation of the workshops etc. can be found later on in this Report under the chapter Activities.

A comprehensive Dissemination Kit was prepared under this task, in order to provide a comprehensive package of PR material, explaining the essence of the REPAiR project and including, among other things, the descriptions of the project results, visual materials (infographics, pictures) and videos to communicate the REPAiR project in the broadest sense. The D8.10 Dissemination Kit was prepared in December 2020 as a deliverable, but also as an online section available for short access to the REPAiR results within the REPAiR website: http://h2020repair.eu/dissemination-kit/

The task 8.6 Promotion and external dissemination of the project's results also cover the organisation of the final event, thus achieving the final milestone of this work package: MS31 Final Seminar. The organisation started in late summer 2019. After numerous personal, and afterwards online meetings and discussions finishing with a pol arranged within the consortium members, it was decided in early summer 2020 that, due to the COVID-19 pandemic, the REPAiR Final Event will be organised entirely online. For more than a year, dozens of meetings were held among project beneficiaries to prepare the final event. The Technical part of the event was prepared mostly by TUD and IGiPZ, while other partners were fully engaged in the creation of the content. The Final Event took place on the 13th of October 2020. According to registration, there were 268 attendees present: 157 representing scientific community (59%), 30 policymakers (11%), 23 industry (9%), 11 civil society (4%), 11 general public (4%), and 36 other (13%). Attendees stated their residence in 27 countries, all over the World: Argentina (1), Bangladesh (2), Belgium (21), Canada (1), China (1), Denmark (4), Egypt (1), Ethiopia (2), France (8), Germany (28), Greece (1), Hungary (13), India (5), Ireland (1), Italy (36), Lithuania (3), Netherlands (70), Norway (1), Philippines (1), Poland (17), Serbia (1), South Korea (1), Spain (10), Sweden (2), UK (5), Ukraine (2), USA (1), while some attendees did not specify the country (29). The Final Event was recorded, and these videos together with the full programme, short biographies of the speakers, and links to the presentations available for downloaded can be found at the REPAiR website here.

The REPAiR Team has also produced an online exhibition to present the results of the REPAiR project in an appealing way. In this next-generation experience, visitors may learn all about CE contexts and solutions coming out of the REPAiR project. The exhibition was prepared by the entire REPAiR team in a Kunstmatrix – a unique tool that enables the creation of 3D showcases. The visitor can enjoy the exhibition here. However, the visit is possible until October 2022. Afterwards, the exhibits will be available only within the REPAiR's website subpage Virtual Exhibition here.

TASK NUMBER	TASK TITLE	TASK LEADER	DUE DATE (IN MONTHS)	TASK DESCRIPTION (FROM THE PROJECT PROPOSAL)
8.7	Strategy for the exploitation of results	TUD	24-36	An exploitation plan will be produced to ensure future uptake of the GDSE by public authorities and the use of the knowledge and deliverables generated as part of REPAiR. The plan will be tailored and oriented to the specific groups of end-users.

In December 2020, under the lead of the TUD, the deliverable D8.9 Exploitation plan was prepared. This deliverable describes the most relevant exploitable products of REPAiR, providing a quick description of the products, and identifying both already present and potential exploitation routes for each of them. Furthermore, all relevant links to videos, image material and other documentation of the product are presented to allow further exploitation by the REPAiR consortium and beyond.

3. Publications

Based on the project proposal and rules of the EU Horizon 2020 programme, REPAiR follows the open access policy concerning publications as the outcomes from the project. It was planned to deliver at least twelve peer-reviewed journal articles throughout the project. In the end, until December 2020 REPAiR Consortium members reported 44 open access scientific articles related and acknowledged to the REPAiR project (almost all in peer-reviewed journals). Moreover, these publications range from books and special issues to research articles published independently in a chosen journal. The list of all publications, hyperlinked for download, is available at the REPAiR website here. This number of publications is not definitive, since at least five publications are planned for 2021 after the project will officially be finished. Most of the articles are written by more than two authors, and usually, these authors are representing different institutions. Above mentioned reflects a huge scientific discussion and collaboration among the partners. Altogether, 70 different authors published under the REPAiR acknowledgement so far (Tab.1).

Tab. 1: All authors of the REPAiR scientific publications

NO.	AUTHOR	NR. OF PUBLICATIONS
1	Acke A.	2
2	Albizzati P. F.	1
3	Alvarenga R.A.F.	1
4	Amenta L.	10
5	Arciniegas G.	2
6	Arena A.	1
7	Arlati A.	2
8	Astrup T.F.	1
9	Attademo A.	4
10	Balz V.	1
11	Berruti G.	6
12	Boccia L.	1
13	Bodor Á.	1
14	Ceric D.	1
15	Cerreta M.	4
16	Cooreman-Algoed M.	1
17	Czapiewski K.	2
18	Dąbrowski M.	4
19	Dewulf J.	6
20	Formato E.	3
21	Furlan C.	2
22	Garzilli F.	1
23	Geldermans B.	2
24	Gil J.	2
25	Grünhut Z.	1
26	Hackauf U.	1
27	Heurkens E.	2
28	Huygensa D.	1
29	Huysveld S.	2
30	Inglese P.	2
31	Iodice S.	3

NO.	AUTHOR	NR. OF PUBLICATIONS
32	Izdebska O.	1
33	Knieling J.	2
34	Leer J. van der	1
35	Lucertini G.	1
36	Luscuere P.	1
37	Mazurek D.	1
38	Mazzarella C.	3
39	Meister K.	1
40	Mezei C.	4
41	Muñoz P. Unceta	1
42	Obersteg A.	2
43	Palestino M.F.	4
44	Pomazi I.	1
45	Préat N.	1
46	Qu L.	2
47	Ragaert K.	1
48	Remøy H.	2
49	Rigamonti L.	1
50	Rigillo M.	1
51	Rosa F. De	1
52	Russo M.	3
53	Sanjuan-Delmás D.	3
54	Sfez S.	2
55	Sileryte R.	3
56	Song Y.	1
57	Spiezia M.	1
58	Szabo E.	1
59	Taelman S.E.	6
60	Tenpierik M.	1
61	Timmeren A. van	4
62	Tonini D.	4
63	Toro P. De	2
64	Traczyk A.	1
65	Tramontano M. R.	1
66	Varju V.	6
67	Ver C.	1
68	Vittiglio V.	3
69	Wandl A.	9
70	Wójcik M.	2

Tab. 2: List of the REPAiR scientific publications

YEAR	TITLE	AUTHORS	JOURNAL /BOOK	VOL./NO.	PAGES	PUBLISHER	IF	WP
2017	La pianificazione del ciclo dei rifiuti e delle areerifiuto nella svolta della governancemetropolitana di Napoli (in Italian)	Berruti G., Palestino M.F	Working papers. Rivista online di Urban@it	2/2017	11	Centro nazionale di studi per le politiche urbane	-	WP3, WP5
2017	Economia circolare, scarti e rigenerazione del periurbano: il progetto REPAiR (in Italian)	Russo, M., Attademo, A., Formatto, E., Vittiglio, V., Amenta, L.	Proceedings from the conference Atti della XX Conferenza Nazionale SIU	Workshop 6 Urbanistica e/è Azione Pubblica per il Ri-ciclo e la Valorizzazion e Energetica dell'ambiente e del Paesaggio	1235-1242	Planum Publisher Roma-Milano	-	WP3
2018	Beyond Wastescapes: Towards Circular Landscapes. Addressing the Spatial Dimension of Circularity through the Regeneration of Wastescapes.	Amenta L, van Timmeren A.	Sustainability	10 (12)	4740	MDPI, Basel, Switzerland	2.58	WP3, WP4
2018	La rigenerazione dei paesaggi dello scarto come occasione per innescare processi circolari nel periurbano. Un report dalla regione urbana di Napoli / Wastescape regeneration as a chance for circular peri-urban processes.	Berruti, G.	Urbanistica	LXX, 162,	128-137	INU Edizioni Srl, Roma	-	WP3
2018	Le aree-rifiuto come sfida dell'economia circolare. Un cantiere aperto nella regione urbana di Napoli (in Italian).	Berruti G., Palestino M.F	Urbanistica Informazioni	278	26-31	Istituto Nazionale di Urbanistica, Roma	-	WP3, WP4 WP5, WP6
2018	A hybrid decision-making process for wastescapes	Cerreta, M. Inglese, P. & Mazzarella, C.	Chapter In: A. Leone & C. Gargiulo (Eds.), Environmental and	-	603-610.	FedOAPress, Naples	-	WP4, WP5, WP6

	remediation. Geodesign, LCA, Urban Living Lab interplay.		territorial modelling for planning and design.					
2018	Social-Ecological-Technical systems in urban planning for a circular economy: an opportunity for horizontal integration,	van der Leer, J., van Timmeren, A., Wandl, A.	Architectural Science Review	61 (5)	298-304	Taylor & Francis online	1.40	WP4, WP6
2018	Eco-Innovative Solutions for Wasted Landscapes	Rigillo, M., Amenta, L., Attademo, A., Boccia, L., Formato, E., Russo, M.	RI-VISTA	1/2018 Special issue: Out of waste landscapes	146-159	Firenze University Press	-	WP5, WP6
2018	Evaluating sustainable urban development using urban metabolism indicators in urban design	Song, Y., Gil, J., Wandl, A., van Timmeren, A.	Europa XXI	34	5-22	IGSO PAS	-	WP4, WP5, WP6
2018	Introducing Spatial Variability to the Impact Significance Assessment. I	Sileryte R., Gil J., Wandl A., van Timmeren A.	Chapter In: Mansourian A., Pilesjö P., Harrie L., van Lammeren R. (eds) Geospatial Technologies for All.	Part of the Lecture Notes in Geoinformation and Cartography book series (LNGC)	189-209	Springer, Cham.	-	WP4, WP6
2018	A Holistic Sustainability Framework for Waste Management in European Cities: Concept Development.	Taelman, S. E., Tonini, D., Wandl, A., Dewulf, J.	Sustainability	10 (7)	2184	MDPI, Basel, Switzerland	2.58	WP4
2018	Environmental impacts of food waste: Learnings and challenges from a case study on UK.	Tonini, D., Albizzati, P.F., Astrup, T.F.	Waste Management	76	744-766	-	5.45	WP4, WP7
2018	Eco-innovative strategies towards peri-urban sustainability: the case study of the metropolitan area of Naples	Vittiglio, V., Iodice, S., Amenta, L., Attademo, A.,	Europa XXI	34	23-40	IGSO PAS	-	WP4, WP5

		Formato, E., Russo, M.					
2019	beyond WASTESCAPES: Opportunities for sustainable urban and territorial regenerations	Amenta L.	Book	-	198p.	TU Delft Open, Delft.	WP3, WP5
2019	From wastscape to resource: Multimethodological approaches for the regeneration of waste landscapes (in Italian)	Cerreta, M., De Rosa, F., De Toro, P., Inglese, P., Iodice, S.	BDC. Bollettino Del Centro Calza Bini	Vol. 19, 2/2019	p. 337-352	Dipartimento di Architettura (DiARC), Università degli Studi di Napoli Federico II	WP3, WP5
2019	Circular and Flexible Indoor Partitioning—A Design Conceptualisation of Innovative Materials and Value Chains.	Geldermans, B., Tenpierik, M., Luscuere, P.	Buildings	9(9), 194	p. 1-24	MDPI	WP3
2019	Local resource-based local development potentials in changing Hungarian waste management (in Hungarian).	Mezei, C, Varju, V.	Tér és Társadalom	33. évf., 2. szám	p. 41-61	Institute for Regional Studies of the Centre for Economic and Regional Studies. Budapest	WP3, WP6
2019	Facilitating Circular Economy in Urban Planning	Remøy H., Wandl A., Ceric D., van Timmeren A.	Urban Planning	Vol 4, No 3,	p. 1-4	Cogitatio Press Rua Fialho de Almeida 14, 2º Esq. 1070-129 Lisbon Portugal	WP2, WP3, WP4, WP5, WP6
2019	Managing the Transition towards Circular Metabolism – Living Labs as a Co-Creation Approach	Amenta L., Attademo A., Remøy H., Berruti G., Cerreta M., Formato E.	Urban Planning	Vol 4, No 3,	p. 5-18	Cogitatio Press Rua Fialho de Almeida 14, 2º Esq. 1070-129 Lisbon Portugal	WP5, WP6
2019	Urban Regions Shifting to Circular Economy – Understanding Challenges for New Ways of Governance	Obersteg A., Arlati A., Acke A., Berruti G., Czapiewski K., Dąbrowski M., Heurkens	Urban Planning	Vol 4, No 3,	p. 19-31	Cogitatio Press Rua Fialho de Almeida 14, 2º Esq. 1070-129 Lisbon Portugal	WP6

		E., Mezei C., Palestino M.F., Varjú V., Wójcik, M., Knieling J.						
2019	A Geodesign Decision Support Environment for Integrating Management of Resource Flows in Spatial Planning.	Arciniegas G., Šileryté R., Dąbrowski M., Wandl A.	Urban Planning	Vol 4, No 3,	p. 32-51	Cogitatio Press Rua Fialho de Almeida 14, 2º Esq. 1070-129 Lisbon Portugal		WP2
2019	Transferring Circular Economy Solutions across Differentiated Territories – Understanding and Overcoming the Barriers for Knowledge Transfer.	Dąbrowski M., Varjú V., Amenta L.	Urban Planning	Vol 4, No 3,	p. 52-62	Cogitatio Press Rua Fialho de Almeida 14, 2º Esq. 1070-129 Lisbon Portugal		WP5, WP6
2019	The Circular Economy Concept in Design Education – Enhancing Understanding and Innovation by Means of Situated Learning.	Wandl A., Balz V., Qu L., Furlan C., Arciniegas G., Hackauf U.	Urban Planning	Vol 4, No 3,	p. 63-75	Cogitatio Press Rua Fialho de Almeida 14, 2º Esq. 1070-129 Lisbon Portugal		WP5, WP6
2019	Urban Metabolism And Circular Economy Interrelations. Analysing Three Examples Of Eu-Funded Projects.	Amenta L., Lucertini, G.	BDC Journal	V. 19 N. 1	p. 185-210	Dipartimento di Architettura (DiARC), Università degli Studi di Napoli Federico II		
2020	A framework for using the handprint concept in attributional life cycle (sustainability) assessment.	Alvarenga R.A.F., Huysveld S., Taelman S.E., Sfez S., Préat N., Cooreman-Algoed M., Sanjuan-Delmása D., Dewulf J.	Journal of Cleaner Production	Vol 265	9p. (online)	Elsevier	7.246	WP4
2020	Regenerativescapes: incremental evaluation for the	Cerreta, M., Mazzarella, C., Spiezia, M.,	Sustainability	12(17)	23p. (online)	MDPI	2.576	WP3, WP5

	regeneration of unresolved territories in East Naples.	Tramontano, M. R.						
2020	Quantitative sustainability assessment of household food waste management in the Amsterdam Metropolitan Area.	Tonini D., Wandl A., Meister K., Muñoz Unceta P., Taelman S.E., Sanjuan-Delmás D., Dewulf J., Huygensa D	Resources, Conservation & Recycling	Volume 160	13p. (online)	Elsevier	8.086	WP4
2020	Experimenting with Circularity When Designing Contemporary Regions: Adaptation Strategies for More Resilient and Regenerative Metropolitan Areas of Amsterdam and Naples Developed in University Studio Settings	Amenta, L., Qu, L.	Sustainability	12(11)	24p. (online)	MDPI	2.576	WP2
2020	An operational framework for sustainability assessment including local to global impacts: Focus on waste management systems.	Taelman, S., Sanjuan-Delmás, D., Tonini, D., Dewulf, J.	Resources, Conservation & Recycling	Volume 162	11p. (online)	Elsevier	8.086	WP4
2020	Climate resilient cities. Introducing two complementary projects' approaches to mitigate the negative impacts of climate change.	Amenta, L. Arena, A.	UPLanD – Journal of Urban Planning	5(2)	p. 29-38	University of Maryland		WP4
2020	Integrated Approaches for Peri-Urban Wastescapes: Eco-Innovative Strategies of the REPAiR Project in the Naples Case Study.	Garzilli F., Mazzarella C., Vittiglio V.	International Journal of Urban Planning and Smart Cities (IJUPSC)	Vol 1, No 2	p. 43-58	IGI Global		WP5
2020	A step forward in quantifying the substitutability of secondary materials in waste	Rigamonti L., Taelman S.E., Huysveld S.,	Waste Management	Volume 114	p. 331-340	Elsevier	5.448	WP4

	management life cycle assessment studies.	Sfez S., Ragaert K., Dewulf J.						
2020	Waste and wasted landscapes focus on abandoned industrial areas.	Iodice, S., De Toro, P	Detritus	Volume 11 – 2020	p. 103-120	CISA PUBLISHER		WP5
2020	Waste management (in Hungarian)	Varju, V., Mezei	Territorial challenges and territorial policies in Hungary between 2010-2020, M. Czirfusz (ed.)		p. 105-110	DTI		WP6
2020	The Effect of Trust on the Various Dimensions of Climate Change Attitudes	Bodor, Á, Varjú, V., Grünhut, Z.	Sustainability	12(23)	19p. (online)	MDPI	2.576	
2020	A refined waste flow mapping method. Addressing the material and spatial dimension of waste flows in the urban territory through big data: the case of the Amsterdam Metropolitan Area	Furlan, C, Wandl, A., Geldermans, B., Sileryte, R.	CONTESTI CITTÀ TERRITORI PROGETTI	1	p. 74-89	Firenze University PRESS		WP2, WP3
2020	Circling the square: Governance of the circular economy transition in the Amsterdam Metropolitan Area	Heurkens E., Dąbrowski M.	European Spatial Research and Planning	Volume 27, Number 2	p. 11-30	Institute of the Built Environment and Spatial Policy, University of Łódź		WP6
2020	Wastelands as an opportunity for managing Naples' sustainable transition	Berruti G., Palestino M. F.	European Spatial Research and Planning	Volume 27, Number 2	p. 31-40	Institute of the Built Environment and Spatial Policy, University of Łódź		WP5
2020	A multi-stakeholder and interdisciplinary approach to waste management and circular economy: The case of Flanders and Ghenr, Belgium	Acke A., Taelman S. E., Dewulf J.	European Spatial Research and Planning	Volume 27, Number 2	p. 41-56	Institute of the Built Environment and Spatial Policy, University of Łódź		WP5
2020	Making cities circular: Experiences from the living lab Hamburg-Altona	Obersteg A., Arlati A., Knieling J.	European Spatial Research and Planning	Volume 27, Number 2	p. 57-76	Institute of the Built Environment and		WP5

						Spatial Policy, University of Łódź	
2020	Local resurec-based development potential as reflected in waste management/circularity transition: Governance barriers in Hungary	Varju V., Mezei C., Ver C.	European Spatial Research and Planning	Volume 27, Number 2	p. 77-92	Institute of the Built Environment and Spatial Policy, University of Łódź	WP6
2020	Waste material flow analysis in the Łódź Metropolitan Area	Czapiewski K., Mazurek D., Traczyk A., Wójcik M.	European Spatial Research and Planning	Volume 27, Number 2	p. 93-112	Institute of the Built Environment and Spatial Policy, University of Łódź	WP3
2020	Citizen involvement in waste management and circilar economy in cities: Key elements for planning and implementation	Izdebska O., Knieling J.	European Spatial Research and Planning	Volume 27, Number 2	p. 113-128	Institute of the Built Environment and Spatial Policy, University of Łódź	WP5
2020	Circular economy policy-related national initiatives in Visegrad countries	Pomazi I., Szabo E.	European Spatial Research and Planning	Volume 27, Number 2	p. 128-152	Institute of the Built Environment and Spatial Policy, University of Łódź	WP6

4. Activities

REPAiR Consortium members reported all together 493 different activities within the 52 months of the project duration. When grouped as suggested by the European Commission on dissemination reporting, almost all groups of activities were covered within the REPAiR (Fig. 1).

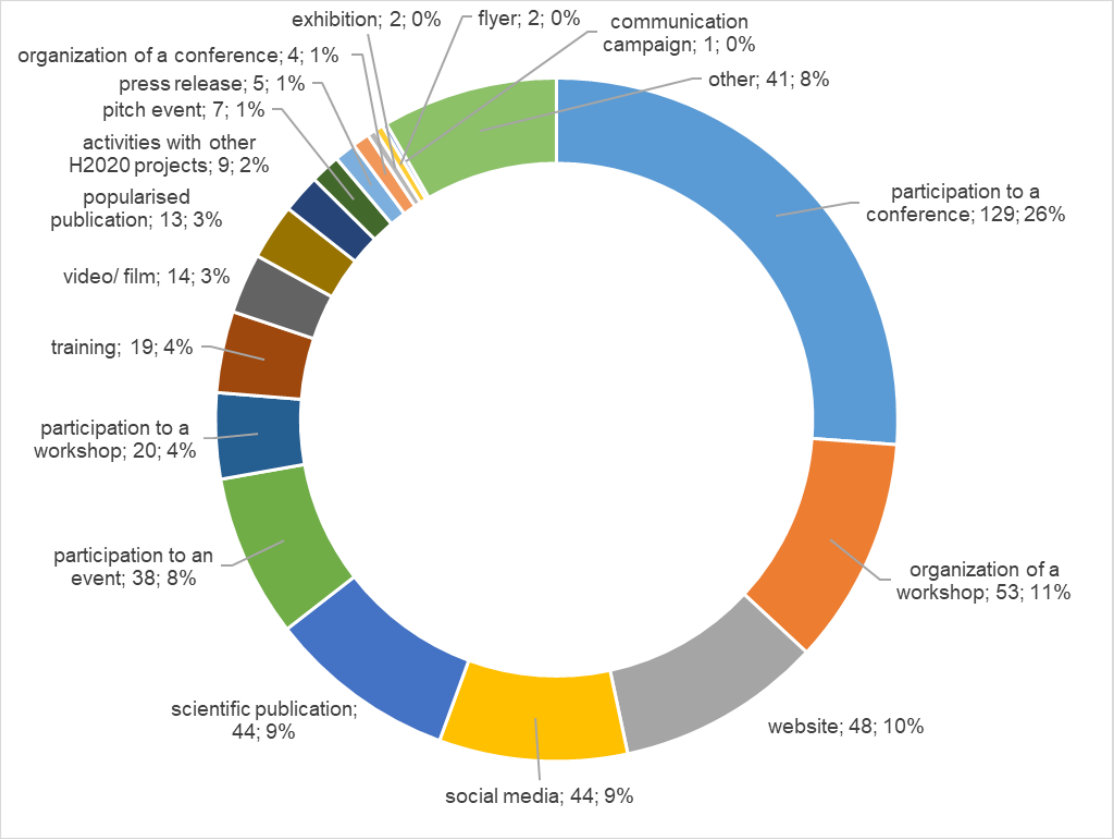


Fig. 1: REPAiR spectrum of activities between September 2016 and December 2020

By a number of activities, **participation in a conference** was leading activity within the REPAiR Consortium Members. On average, every fourth activity was a participation in a conference. In total, 129 participations have been registered. hile quite often more than one person participated, While of course reporting took place by event, not by the number of attendees. Within the first year of the project duration, topics of presentations were related to the overall presentation of the project and its methodology, while the topics presented later on related to the results of particular work packages, or entire project (towards the end of the project). The REPAiR topics were presented mostly at international conferences within the European Union (in Austria, Belgium, Denmark, Finland, Germany, Greece, Hungary, Ireland, Italy, Lithuania, the Netherlands, Poland, Portugal, Spain, Sweden, but also worldwide (in Australia, Cabo Verde, Chile, China, Indonesia, Mexico, Norway, Singapore, South Africa, Switzerland, Thailand, United Kingdom). During the pandemic 2020, almost all of the conferences were held online.

The REPAiR consortium members have organised 4 international scientific conferences related to REPAiR:

- 2017: Warsaw Regional Forum 2017 (IGiPZ);

- 2018: Socio-economic, environmental, and regional aspects of a circular economy (RKI);
- 2018: Resource management and circular economy in city regions - Contributions to climate mitigation and sustainable spatial development (RKI);
- 2020: Beyond REPAiR: making the transition of the circular economy happen (TUD, IGiPZ);

Additionally, REPAiR researches organised dozens of REPAiR related sessions at the conferences organised by the institutions outside of the REPAiR consortium.

The organisation of a workshop represents the second most frequent activity performed within the REPAiR project (53 workshops were organised, 11% of all activities). Workshops were presenting one of the REPAiRs methods, and therefore all of the study areas have organised a series of workshops, where REPAiR key audiences (researchers, decision and policymakers, non-governmental organisations, the general public, and students) could discuss on REPAiR topics. Those workshops were important for local stakeholders and local governments in all of the REPAiR's PULLs.

More details concerning online activities (**websites** and **social media**), which comprises the following two groups of activities with 10, and 9% respectively, are presented in Chapter 6 of this report. At the other side, **publications** which cover 9% of activities have been already presented in the previous chapter.

Events participation is the following most frequent activity (38 participations, 8% of all activities). Within these events, various happenings and meetings can be found, where the REPAiR project and its results were presented. These events were the places where the REPAiR researchers were able to hold meetings and discuss REPAiR with the representatives of other research institutions, companies, local administrations, policymakers, or even beneficiaries of non-H2020 projects (such as Interreg Europe, i.e.).

Other recorded dissemination activities of the REPAiR project include **participation to a workshop** (20, 4%), **training** – which includes, i.e. training of students (courses), and PhD supervising (19, 4%), **video/film** (14, 3%), **popularised publications** (13, 3%), **activities with other Horizon 2020 projects** (9, 2%), **pitch events** (7, 1%), **press release** (5, 1%), **organisation of a conference** (4, 1%), **exhibition** (2), **flyer** (1), and **communication campaign** (1). There were 41 activities (8%) hard to assign to any of the set groups of activities. These have been recorded as **other**, and they comprise student internships, student exchanges and similar activities.

5. Targets

REPAiR Executive Board finds the spectrum of publicity reached, including a huge number of policymakers, industry and civil society representatives as a huge success. During the first 18 months of the REPAiR project (September 2016 – February 2018), it has reached approximately 25000 persons. The following 18 months (March 2018 – August 2019), this number almost doubled, to ca. 45000 persons reached. However, the last 16 months, despite ten pandemic months, saw magnificent growth in the number of persons reached to almost 100.000. Altogether, REPAiR activities reached approximately 150.000 persons – 144.546 persons reported by consortium members through the REPAiR dissemination reports of single activities (Fig. 2).

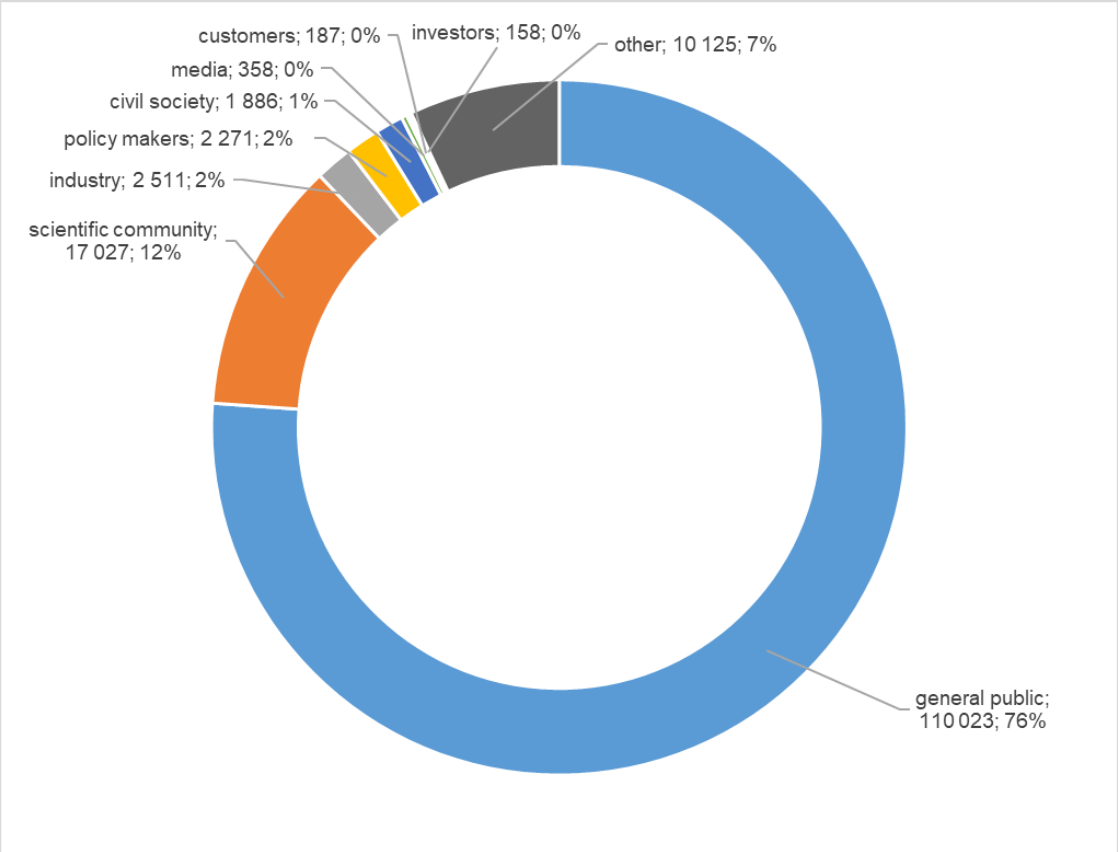


Fig. 2: Targets reached by REPAiR activities

The general public has been reported to approximately 3 of 4 persons reached. This is due to the mass media, including the website and social media, where visitors have been reported as the general public. There is a full awareness that a large number of persons reported here to the general public belongs to either the scientific community or some other more clearly defined group. However, it is impossible to make an approximation. As expected, there is a large number of persons who belong to the **scientific community** being reached. According to the reports, there were 17.027 persons from this group reached. This group is followed by **industry members** (2.511), **policymakers** (2.271), **civil society** (1886), **media** (358), **customers** (187), and **investors** (158). Around 10.000 persons reached are reported as **other**, not belonging to any stated group.

6. Website & Social Media Statistics

The main communication and dissemination channels for the REPAiR were: the project website with the primary function of repository, while primary functions of the communication were taken by social media channels, Twitter and Facebook. Repository of the results, and also a networking tool for researchers target group are Research Gate and Academia.edu portals, where REPAiR is present.

The content of the website and social media was provided by IGiPZ (coordinator) and the consortium members and was updated regularly. Meetings and email communication have been used to bring the website under the attention of the consortium, and to ask for (additional) inputs for the content.

Website http://h2020repair.eu/. The REPAiR website recorded 255.803 visits by 91.046 unique visitors (a number used for reporting/ statistics of persons reached). The website experienced huge traffic since September 2019. Only in this last period, the website was visited by 76.053 unique persons. The REPAiR project is of great interest even outside the consortium members and the countries they are coming from. This can be proved by the Top 10 Countries of the REPAiR website visitors, where 6 of 10 countries are not included in the project (Fig. 3).

Top 10 Countries

Rank	Flag	Country	Visitor Count
1		United States	18,440
2		Netherlands	6,635
3		Germany	6,620
4		China	6,412
5		Ukraine	5,680
6		Italy	4,307
7		France	3,557
8		Russian Federation	2,837
9		India	2,674
10		Poland	2,432

Fig. 3: Top 10 Countries of the REPAiR website visitors

Social Media. Social media played beside the official website, a huge role in the REPAiR dissemination. Of the social media accounts established at the beginning of the project (Facebook, Twitter, LinkedIn, Research Gate, Academia.edu and Google+), the REPAiR Facebook, and Twitter accounts reached the most massive audience.

REPAiR **Facebook** account (page) is followed by 635 persons or institutions. According to available Facebook analytics, there are 54% of female, and 46% of male followers. The largest number of the REPAiR Facebook page followers is from Italy (314), which is followed by the Netherlands (71), Poland (30), Germany (18), Portugal (11), UK (10), USA (10), Greece (9), Belgium (8), Myanmar (8) – to name the Top 10. The REPAiR Facebook page gathered 603 likes, as an entire page. However, the top reach post ("REPAiR Knowledge Transfer Event & 10th PULL Naples") has reached ca. 2.200 Facebook users and there are additional six posts which reached over 1.000 users (Fig. 4).

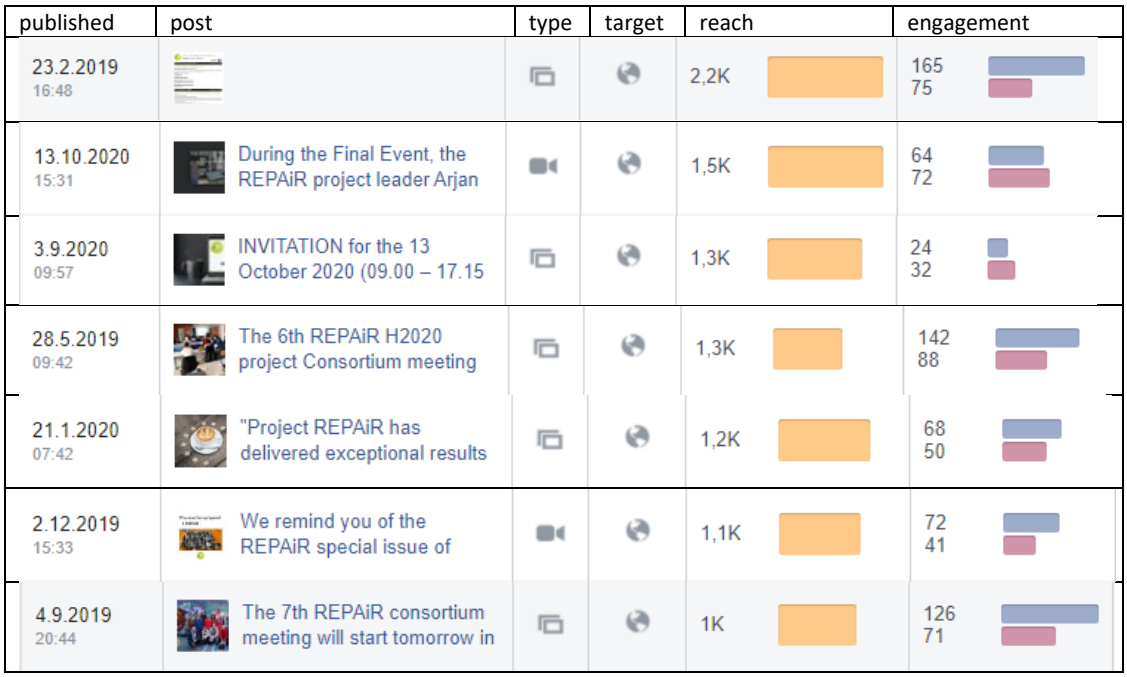
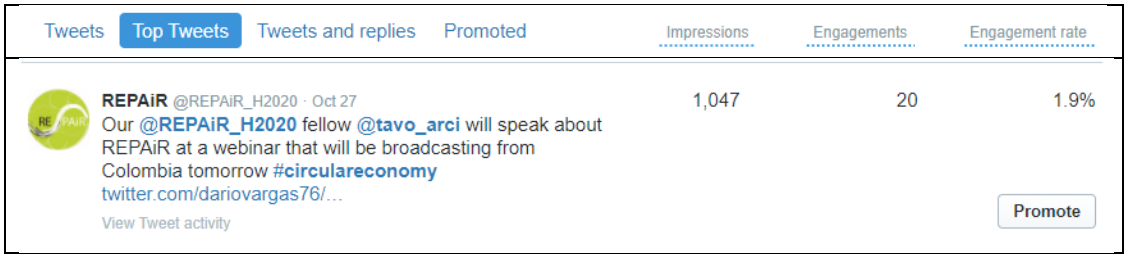


Fig. 4: REPAiR posts on Facebook page reached over 1000 users

REPAiR **Twitter** account is followed by 340 persons or institutions. Available analytics on Twitter confirms huge traffic of posts (Tweets) placed. On average, every month, one of the post cause more than 1.000 impressions. Twitter impressions are defined as a total tally of all the times the Tweet has been seen. This includes not only the times it appears in one of followers' timeline but also the times it has appeared in search or as a result of someone liking the Tweet. Twitter impressions is a metric highly recommended to track. Fig. 5 brings REPAiR Tweets earning over 1.000 impressions within the pandemic 2020 (since March 2020).



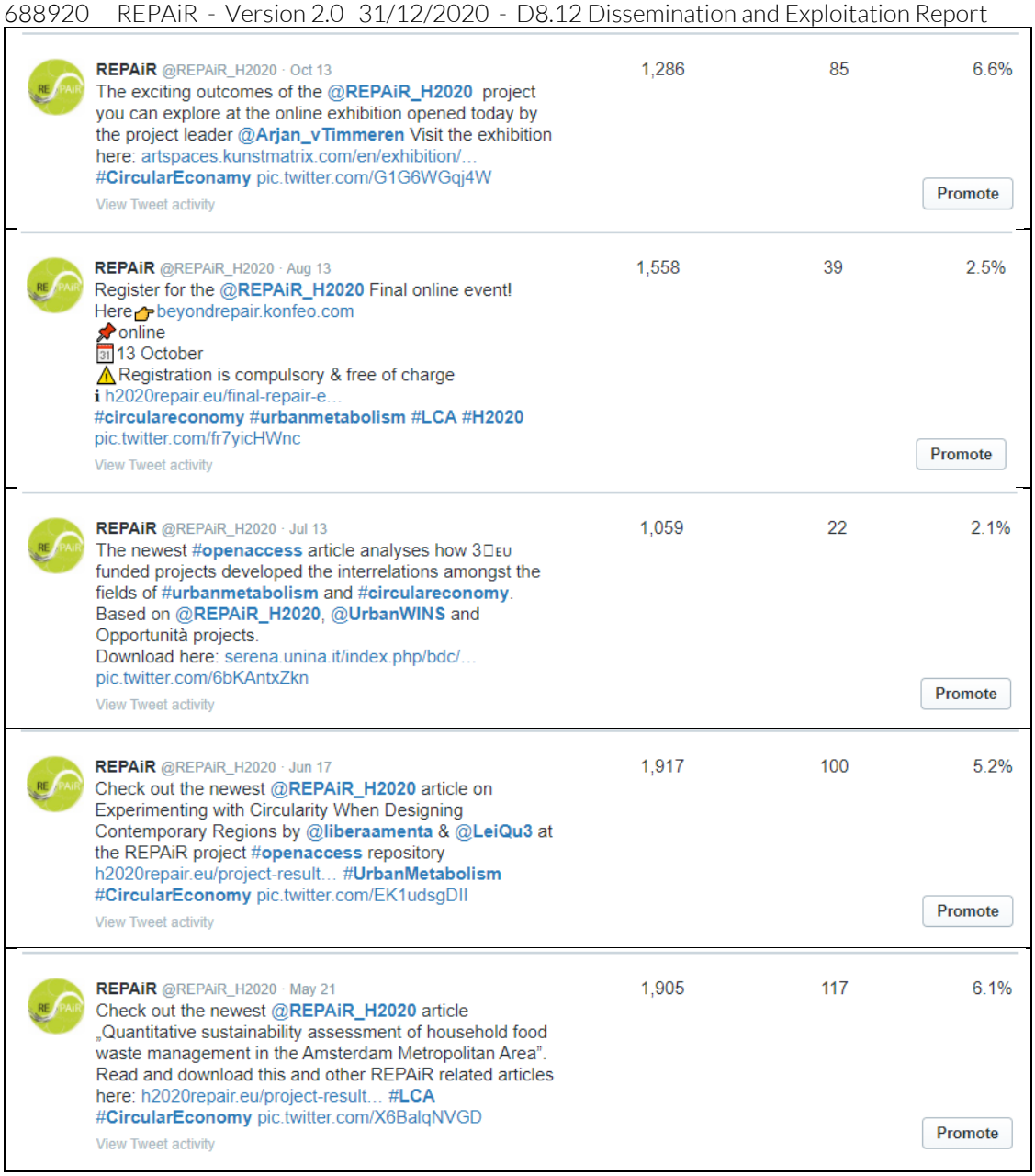


Fig. 5: REPAiR posts (Tweets) on Twitter reached over 1.000 users (since March 2020)

Other social media have been maintained, while Google+ account was removed since Google decided to shut down this social network. Here is the list with URL addresses of the REPAiR online media administrated by the work package leader IGiPZ:

- website: www.h2020repair.eu
- Twitter: https://twitter.com/REPAiR_H2020
- Facebook: https://www.facebook.com/h2020repair
- LinkedIn:https://www.linkedin.com/in/repair-horizon-ab7282139?trk=nav_responsive_tab_profile
- Research Gate: https://www.researchgate.net/profile/Repair_Horizon
- Academia.edu: https://independent.academia.edu/h2020repair

7. Exploitation

A detailed overview of the exploitable products and first exploitation results were recently presented in deliverable D8.6 Exploitation Plan. The following is a summary of this deliverable focussing on the exploitation results per product.

Geodesign Decision Support Environment

Ongoing exploitation

The H2020 funded project CINDERELA - New Circular Economy Business Model for More Sustainable Urban Construction, used and further developed the flow module of the GDSE for flow mapping and as input for LCA studies (TUD).

The spin-off Geofluxus, founded by two PhD candidates from the REPAiR and CINDERELA projects is exploiting and further developing the flow module of the GDSE as a platform that maps, analyses and predicts where, how and which materials can be saved from becoming waste.

AMSTERDAM CIRCULAR ECONOMY STRATEGY - TU. Delft, used and further developed the flow module to contribute to establishing the baseline of the circular economy strategy and implementation plan of the city of Amsterdam.

Geo-Col has demonstrated the GDSE on a number of occasions in several countries, such as Thailand, Colombia, Mexico, Chile, Australia, drawing a lot of interest and sparking all sorts of exciting discussions. Both the GDSE and the methodology to use it, are part of the toolkit utilised, rolled out, and offered by Geo-Col in ensuing consultancy projects, project proposals and assignments that involve the circular economy, collaborative spatial planning, map-based co-creation, and spatial communication of information on flows of, for example, materials, resources, energy, biomass, food, all towards a quantitative reduction of waste. Notably, at the moment Geo-Col is involved in a recently launched H2020 project called FoodSHIFT2030, in which the GDSE will be adapted and applied to help to model food resource flows in food systems and food value chains for nine European city-regions. Likewise, Geo-Col has also been leading the recent adaptation and application of the GDSE within the INTERREG Deutschland-Nederland project BIVAC to model biomass flows in the Rhine Waal Euroregion, thereby helping the co-creation of biomass hubs in the region.

Consortium members that will follow up the exploitation path

GGR will be using the GDSE in its future research and consulting projects in the fields of "circular economy" and "waste as a resource". GGR will also use the GDSE's general framework as a technical and organisational blueprint for co-design tools and processes in future research and consulting projects in other fields of sustainable development with a spatial emphasis.

Usage of the GDSE beyond REPAiR in Hamburg. After the GDSE usage/presentation during the last PULL, the representatives from the district of Altona, SRH and Senate Chancellery proposed that the GDSE should be presented to further experts. A first presentation of the GDSE to further experts from the

department of waste management in the Ministry for the Environment, Climate, Energy and Agriculture and the Senate Chancellery was held in December 2020. It has been discussed how the GDSE could be used for follow-up projects and how to connect it with the existing data platforms in Hamburg. A further presentation is planned for early 2021.

Comprehensive sustainability assessment framework

Ongoing exploitation

The Plasticity project, funded by the Interreg 2 Seas Programme, is analysing industrial and commercial plastic waste streams in different European cities. To address the sustainability of different scenarios, the researchers are starting from the framework developed within the REPAIR project and might slightly adapt it towards the objectives of Plasticity.

Within the context of REPAIR, the framework has been applied to ongoing waste management practices in all cities involved in the project. Local governments are informed about the social, economic and environmental opportunities arising from the analysis of eco-innovative solutions and reflect on the practical implementation of specific solutions within their city.

The framework is currently being used by the Joint Research Centre and Technical University of Denmark (DTU) to assess the impacts of a number of food waste valorisation pathways across the EU, in the frame of the project SUSTENERGY (Danish Innovation Fund).

The framework has been implemented in the waste-LCA software EASETECH patented by the Technical University of Denmark (DTU) as one of the methods available in the software to perform impact assessment studies.

Consortium members that will follow up the exploitation path

BIOKOM, the regional waste management company owned by the city of Pécs, is working in close cooperation with RKI and the University of Pécs to propose alternative solutions for the city, especially for biodegradable waste handling. Sustainability assessment performed in the REPAiR project clearly showed that an important potential lies both in the prevention and anaerobic digestion of food wastes, generated by businesses and households. Prevention not only promises advantages in resource management but also helps to fight against hunger through non-profit food saving activities. The assessment framework, the aggregation model and the xml file developed for environmental LCA are going to be exploited further.

All consortium partners can use the sustainability assessment framework and aggregation model. Research institutes, academia, and consultancies (e.g. TUD, HCU, RKI, IGIPZ, UNINA, JRC) can use these exploitable materials and apply it to different cities to analyse the sustainability of other waste management systems or may further expand or adjust the framework/model towards other scientific goals. Companies and

governmental organisations (e.g. IVAGO, BIOKOM, JRC, OVAM, GHM, SRH, P.H.H., GeoCOL) can apply the framework to analyse ongoing practices and propose improvements from the perspective of social, economic and environmental sustainability. The main advantage of the framework is that it provides a comprehensive overview of the impacts across the three pillars and, via the final aggregation, conveys straightforward messages to policy- and decision-makers. Equally, the user board city members (e.g. city of Ghent/Amsterdam/Lodz/BZURA Inter-Communal Association) will use the framework as it shows which solutions are worthy to further investigate and which can be implemented in practice. Especially in light of the political programmes (e.g. Green Deal and New Circular Economy Action Plan), the application of the framework may be very helpful to quantify impacts of proposed policy targets and initiatives.

Online Knowledge Transfer Handbook

Consortium members that will follow up the exploitation path

Any partners can use the online handbook. The most benefit can be achieved once the user board city members (Amsterdam, City of Pécs, Lodz, Campania region, Ghent, City of Hamburg, Bzura Inter-Communal Association) will use the handbook. Once they update their strategic plans, especially operative programmes going towards circularity, they can use the handbook to import EISs from other city regions and integrate it into their context to implement the solution.

Co-creation methodology implemented in Peri-Urban Living Labs

Ongoing exploitation

The URBACT "Sub>urban. Reinventing the fringe" project (2015-2018) ran in parallel to REPAiR. It used Living Lab methodology to regenerate a wastescape in the UNINA focus area (Municipality of Casoria), co-creating with the institution and the community an urban public park (opened in 2019). Other wastescapes co-created in the process and already included in the URBACT Action Plan, will be implemented in 2021-23, through a program of European funds, with the scientific consultancy of UNINA.

UNINA's students have been experimenting with the Living Lab methodology within the Laboratory of Urbanism of the different Degree Courses of the Department of Architecture DiARC.

Consortium members that will follow up the exploitation path

UNINA will use the Peri-Urban Living Lab co-creation methodology in future research projects. Currently, UNINA has started spin-off research, called ECO_REGEN, that will spread REPAiR co-creation and general approach to another focus area in Campania Region territory.

The developed Eco-Innovative Solutions EIS and the related online handbook

Ongoing exploitation

UNINA is using the strategies about Construction & Demolition waste flows in the Scenarios for the Recovery of Ischia Islands settlements after the 2017 earthquake. The Scenarios have also been the result of a university studio and have already been presented to local institutions. They can be the basis for the strategic masterplan in the future Urban Plan of the island.

Consortium members that will follow up the exploitation path

UNINA will use Eco-innovative Solutions and Strategies in future research projects. Currently, UNINA has started spin-off research, called ECO_REGEN, that will spread the REPAiR approach to another focus area in Campania Region territory. The solutions and strategies will then be evaluated with the settled community and then re-defined, according to site-specificities.

UNINA's students have been experimenting with the Eco-innovative Solutions and Strategies within the Laboratory of Urbanism of the different Degree Courses of the Department of Architecture DiARC.

At **TUD,** eco-innovative solutions and strategies for Construction & Demolition waste flows are at the base of research on circular building adaptation. Research by new PhD students focus on drawing lessons and implementing eco-innovative strategies through building adaptation in countries outside of Europe, like Saudi Arabia and Iran, and also aims at understanding societal aspects of these solutions, next to the mere waste flow. Moreover, the topic of eco-innovative solutions for Construction & Demolition waste is included in upcoming research proposals, like the H2020 call 'Green Deals'. MSc students have also been developing business models for implementation of eco-innovative strategies, on building and area level.

Hamburg (H.C.U. nad S.R.H.)

Implementation and testing of solutions by S.R.H. Stadtreinigung Hamburg in the frame of the project WiedergeBorn. SRH had the possibility to use funding from the Horizon2020 project FORCE to implement in a test phase the solutions **EIS1) Creating awareness about waste, EIS2) Rewarding good waste avoidance and separation behaviours and EIS4) Decentralised composting plant in kindergartens and schools,** in one of the REPAiR's sample areas, the large housing estate Osdorfer Born. The project WiedergeBorn is considered a success. SRH is now monitoring the effects over a more extended period and evaluating how comparable activities could be conducted in other areas. The composting project in the daycare centre already was replicated in a second daycare centre and met with great interest among other daycare centres. The district of Altona is very interested in the outcomes and would like to support the replication in other comparable areas, also connecting such activities to the more strategic approach of integrated neighbourhood development.

Further development of the EIS3) Quarter Service Center. The EIS3 concept is further developed by SRH and could become part of a follow-up project. If this new project will be realised, it is planned to implement quarter service centres in at least three different urban neighbourhoods representing different urban typologies, just like it was planned in the initial EIS idea.

EIS5) Organic waste for urban gardening. A Master thesis is further developing this idea in the area of Ottensen. There is great interest by one local initiative idea to implement the solutions, once the concept is ready. The district of Altona proposed that the initiative should then demand funding from the climate action plan Altona for implementing the project.

EIS8) Planning guide for planners to address the waste management topic and EIS9) Design manual for spaces dedicated to waste bins and containers in large housing estates and public spaces. Two students finished their master thesis deepening the EIS. The thesis was developed in close exchange with SRH. During the PULL, both SRH and district Altona expressed interest that a presentation of the thesis should be given to experts in SRH and the district.

EIS7 Collection and processing of organic waste from tree nurseries, the implementation of this solution is still being negotiated between the tree nurseries and the public-private waste management company that is responsible for the collection and processing (fermentation and composting) of organic waste from private households.

Presentation of the EIS in front of the Committee for Climate Protection, Environment and Consumer Protection of the district of Hamburg-Altona. During the PULL the representatives of the district of Altona invited the HCU-team to present the relevant solutions (EIS 1, 2, 3, 4, 5, 8, 9, 10) in the Committee for Climate Protection, Environment and Consumer Protection of the district of Hamburg-Altona. The Committee is also responsible for monitoring the implementation of the climate action plan.

Bzura Inter-Communal Association

The Management Board of the Inter-Communal Association of Bzura adopted the scenario described in **EIS 3.13** as one of the possible solutions for the operation of the waste management system for 19 associated municipalities.

The EIS 3.13 model will be a solution for the submitted applications for co-financing under the Green Deal, as well as in the competitions of the Regional Operational Program of the Lodz Region.

This model was positively assessed by representatives of the National Fund for Environmental Protection and Water Management. It also gained positive opinions among entrepreneurs planning to undertake investments as part of the planned supply chain model.

The City of Łódź Office, which joined the REPAiR project as a User Board member, participated in many PULLs involving various units on its side. Among them, it is worth mentioning: the Department of Environmental Development, the Department of Environmental Protection and Agriculture, the Housing and Revitalization Office, the City Strategy Office, the City Architect's Office and the City Urban Studio.

The conclusions drawn from PULLs inspired a bolder approach to the issues of circular economy in many directions. The list of faculties shows the wide impact of the project conclusions for the partners in Łódź.

As a result, steps were taken to obtain funds, including in the Horizon 2020 competitions for testing and implementing the principles of circular economy as part of the management of the City of Łódź Office.