

WASTEMAN Newsletter #4

Integrated Sustainable Waste Management Systems decreasing pollution discharges in the South Baltic area

Hello hello!

Nowadays it is difficult for us to meet you in person, but we do everything you need to participate with us in our project activities. We organized two events during the pandemic. The first large event was an international scientific forum that was held exclusively online. The second, equally important, was the opening the educational path in Lubań. We invite you to read more!



VII BALTIC FORUM OF BIOGAS AND CIRCULAR ECONOMY



VII Baltic Biogas and Circular Economy Forum



Agenda

22 September 2020

10:00-12:30 **Opening Session**

13:30-16:40 **Session II**

16:40 **POSTER SESSION**

<https://www.imp.gda.pl/BF2020/program.html>

23 września 2020

10:00-12:20 **Session III**

13:30-15:30 **Session IV**



European
Regional
Development
Fund



EUROPEAN
REGIONAL
DEVELOPMENT
FUND

Attention! The photo of the conference room comes from the previous edition of the Forum. Due to the development of the epidemiological situation in Poland, the Forum was held only on the Internet.

WASTEMAN Newsletter #4

Integrated Sustainable Waste Management Systems decreasing pollution discharges in the South Baltic area

VII Baltic Biogas and Circular Economy Forum was held on September 22-23, 2020 and related to the use of circular economy and waste biomass (including agricultural, aquatic and biodegradable municipal waste, poultry industry waste and lignocellulosic waste) for energy generation through the application of biogas and other alternative fuels, especially when integrated with co-generation systems.

The goal of the Baltic Biogas Forum was exchange of experiences related to renewable energy, particular biogas technologies.



PATRONAT HONOROWY:



Programme/Program
 VII Baltic Biogas and Circular Economy Forum
 VII Bałtyckie Forum Biogazu i Gospodarki Cyrkularnej
 22-23 September 2020/ 22-23 września 2020

22 September 2020/ 22 września 2020

Opening Session/ Sesja otwierająca

10:00	Adam Ceniań Special welcome (<i>Powitanie</i>) Marcin Osowski Special address from President of Regional Fund of Environmental Protection and Water Economy in Gdańsk
10:10	Michael Nelles Status and outlook of biogas in Germany (<i>Status biogazu w Niemczech i perspektywy na przyszłość</i>)
10:55	F. Niebling, M. Tietze, J. Grossmann, A. Ceniań, H. Hilse Organic residues into marketable products – new technological solutions to close the nutrient and carbon cycles (<i>Pozostałości organiczne w produktach nadających się do sprzedaży - nowe rozwiązania technologiczne w celu zamknięcia obiegów składników odżywczych i węgla</i>)
11:25	J. Golaszewski, W. Radawiec Energy potential of post-extraction lignocellulosic waste converted by thermochemical processes (<i>Potencjał energetyczny poekstrakcyjnych odpadów lignocelulozowych przetwarzanych termochemicznie</i>)
11:55	V. Dubrovskis, I. Straume Methane potential from paper dust briquettes and effect of some additives (<i>Potencjał metanowy brykietów pyłu papierowego i wpływ niektórych dodatków</i>)
12:30	Break/ Przerwa

Session II

13:30	Z. Cetecloglu Guroł Anaerobic Digestion and Beyond for the Circular Economy (<i>Fermentacja beztlenowa w gospodarce cyrkularnej</i>)
14:15	A. Sikora Anaerobic digestion of bio-waste and by-products of the sugar industry: basic research and applications (<i>Beztlenowy rozkład materii organicznej produktów ubocznych i odpadowych przemysłu cukrowniczego: badania podstawowe i prace aplikacyjne</i>)
14:45	I. Vaskina, R. Vaskin Biogas Production: Challenges for Ukraine (<i>Produkcja biogazu: wyzwania dla Ukrainy</i>)
15:15	Break/ Przerwa
15:25	S. Matthes, M. Ecke, A. Ceniań, J. Grossmann Current and future market applications of microalgae in the context of a modular industrial photobioreactor technology (<i>Obecne i przyszłe rynkowe zastosowania mikroalg w kontekście modułowej technologii fotobioreaktorów przemysłowych</i>)
15:55	J. Cebula, J. Bohdziewicz, A. Ceniań, L. Świerczek, L. Latocha, D. Wereszczyński 3A container technology for utilization of selected organic waste with energy recovery. (<i>Sucha kontenerowa technologia 3A utylizacji wybranych odpadów organicznych z odzyskiem energii</i>)
16:15	A. Myczko, M. Herkowiak, B. Łaska-Zieja, E. Wrześcińska-Jędrusiak Utilization of surplus energy from RES for production of gas with high calorific value (<i>Wykorzystanie nadmiarowej ilości energii ze źródeł odnawialnych do produkcji wysokokalorycznego gazu</i>)
16:40	POSTER SESSION
	O. Janusz-Cygan Biogas enrichment with membrane methods (<i>Wzbogacanie biogazu w metan metodami membranowymi</i>)
	L. Świerczek, J. Cebula, I. Konkol, A. Ceniań Ammonia removal from substrates (and utilization) in order to decrease its inhibiting effects for anaerobic digestion process (<i>Usuwanie amoniaku z substratów (i jego wykorzystanie) w celu redukcji efektów inhibicji procesu fermentacji metanowej</i>)
	J. Falkowski, A. Ceniań Recovery of liquid carbohydrates from waste polyolefins using catalysed pyrolysis (<i>Odzysk ciekłych węglowodorów z odpadowych poliolefin w procesie katalizowanej pirolizy</i>)
	A. Pollak Circular economy education as a key element of environmental safety (<i>Gospodarka cyrkularna – edukacja jako kluczowy element bezpieczeństwa środowiskowego</i>)
	A. Ceniań, B. Pietrzykowski Low temperature district heating in rural area – case study Luban (<i>Niskotemperaturowa sieć ciepłownicza na obszarach wiejskich – studium przypadku w Lubaniu</i>)

WASTEMAN Newsletter #4

Integrated Sustainable Waste Management Systems decreasing pollution discharges in the South Baltic area

23 September 2020/ 23 września 2020	
Session III/ Sesja III	
10:00	V. Naddeo Novel environmental biorefineries for the circular economy: integrating treatment and value recovery <i>(Nowoczesne biorafinerie środowiskowe w gospodarce cyrkularnej: zintegrowane działania oraz odzysk wartości)</i>
10:30	A. Białowiec The proof-of-the-concept of the zero waste biogas plant <i>(Weryfikacja koncepcji bezodpadowej biogazowni)</i>
11:00	J. Cebula, J. Konkol, L. Świerczek, A. Cenian Oxidation of hydrogen sulfide in biogas by manganese (IV) oxide particles <i>(Utlenianie siarkowodoru w biogazie z wykorzystaniem ditlenku manganu)</i>
11:20	P. Lampart ORC systems powered by biogas or biomass for low temperature district heating applications <i>(Biogazowe i biomasowe układy ORC dla zasilania niskotemperaturowych sieci ciepłowniczych)</i>
11:50	M. Piechaczek-Wereszczyńska, J. Cebula, J. Bohdziewicz, L. Świerczek, A. Cenian Formation of carbon deposits in gas engines during combustion of biogas from municipal landfills <i>(Tworzenie depozytów w silnikach gazowych podczas spalania biogazu z wysypisk odpadów komunalnych)</i>
12:20	Break/ Przerwa

23 September 2020/ 23 września 2020	
Session IV/ Sesja IV	
13:30	M. Burkhard Full diapers desired - the material and energetic recovery of incontinence material <i>(Pieluchy jednorazowe pożądane – recykling materiałowy i energetyczny moczołłonnych materiałów)</i>
14:00	D. A. Mana-Ay Christensen Circular economy in Denmark: Bornholm's vision to achieve 100 percent reuse and recycling <i>(Gospodarka cyrkularna w Danii: wizja Bornholmu osiągnięcia 100% powtórnego użycia lub recyklingu)</i>
14:20	J. Wawrzyniak, Ł. Haryński, A. Cenian, K. Siuzdak Public transport driven by hydrogen fuel <i>(Transport miejski napędzany wodorem)</i>
14:40	G. Solowski Hydrogen production from biowaste by dark fermentation <i>(Produkcja wodoru z bioodpadów przy pomocy ciemnej fermentacji)</i>

The Nowa Karczma commune, which is one of the project partners of the WASTEMAN project, presented that in recent years the amount of waste collected from the inhabitants of the Nowa Karczma commune has been growing steadily. In 2019 the amount of municipal waste collected was 236 kg/year per capita.

Around the world, waste generation rates are rising. In 2016, the world's cities generated 2.01 billion tonnes of solid waste, amounting to a footprint of 0.74 kilograms per person per day. With rapid population growth and urbanization, annual waste generation is expected to increase by 70% from 2016 levels to 3.40 billion tonnes in 2050.

Education is one of the elements of implementing a circular economy that contributes to increasing the durability of products and their optimization in terms of being easy to repair and reuse and to reducing the consumption and waste of natural resources. Education will help to make people aware that through their choices the inhabitants of municipalities can support or inhibit the successful transition to a circular economy. Therefore it is crucial to raise the awareness of residents and increase their proactive role and behaviour in implementing the circular economy.

WASTEMAN Newsletter #4

Integrated Sustainable Waste Management Systems decreasing pollution discharges in the South Baltic area

CIRCULAR ECONOMY EDUCATION AS A KEY ELEMENT OF ENVIRONMENTAL SAFETY

Author: MSc., Eng. Andrzej Pollak – Polish Naval Academy

WASTE SHOULD BE REDUCED 😊

the amount of waste collected in the Nowa Karczma Commune

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Amount	891	844	929	967	1076	1387	1459	1568	1703	1637	1647

In recent years, the amount of waste collected from the inhabitants of the Nowa Karczma commune has been growing steadily. In 2019, the amount of municipal waste collected was 235 kg/year per capita.

SEGREGATE CORRECTLY 😊

PAPER

GLASS

METALS AND PLASTICS

BIO

RESIDUAL WASTE

Collection of waste from the RAW/MAT/REAL group in the Nowa Karczma Commune

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Amount	28	29	32	35	55	82	170	212	235	280	283	350

Collection of 100 waste in the Nowa Karczma Commune

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Amount	0	0	0	0	3	15	18	172	208	217	281

WHETHER THE AMOUNT OF GENERATED RESIDUAL WASTE IS REDUCED THROUGH PROPER SEGREGATION?

Waste collection from RESIDUAL groups in the Nowa Karczma Commune



Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Amount	863	815	897	912	964	1175	1095	1130	1188	1094	1017


The introduction of selective collection with a division into five fractions was to cause that only a small amount of waste would constitute a residual fraction. However, as shown in the above charts, the residual fraction constitutes 50% of the weight of all waste. This confirms that the inhabitants still do not segregate properly.

ECOLOGICAL EDUCATION IS THE KEY TO THE CIRCULAR ECONOMY

Education is one of the elements of implementing a circular economy that contributes to increasing the durability of products and their optimization in terms of being easy to repair and re-use, and to reducing the consumption and waste of natural resources. Education will help to make people aware that through their choices the inhabitants of municipalities can support or inhibit the successful transition to a circular economy. Therefore, it is crucial to raise the awareness of residents and increase their proactive role and behavior in implementing the circular economy.

As part of the WASTEMAN project, an educational path in Lubań manor park was built to show the correct segregation and its effects. The path elements are made of recycled materials.



Collect plastic - this path was made from your waste

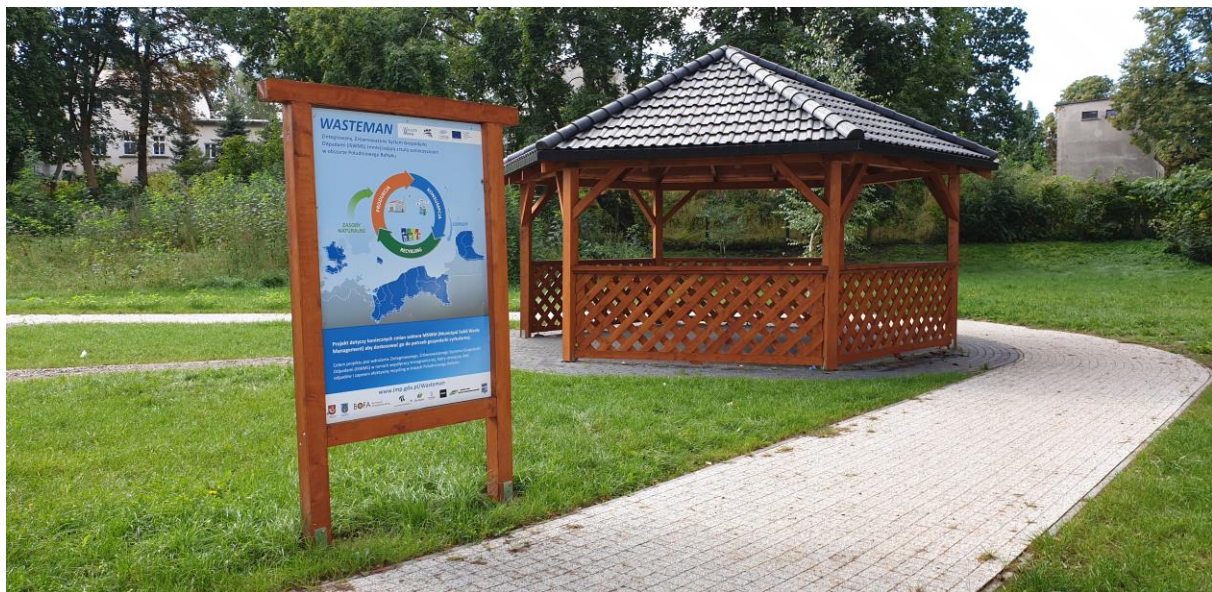
WYDZIELAJ PLASTIK

WASTEMAN Newsletter #4

Integrated Sustainable Waste Management Systems decreasing pollution discharges in the South Baltic area

Opening the educational path in Lubań!

On October 14, 2020, an innovative ecological path was officially opened in Lubań. Ecological path was created as part of the WASTEMAN project. The path is an element of the development of the public space of the modernized rural area - a place of rest and recreation for residents. The ceremonial opening and the symbolic cutting of the ribbon were attended by: Magdalena Sroka - Member of the Polish Parliament, dr hab. Adam Cenian - prof. Of the Polish Academy of Sciences, the Head of the Commune, Nowa Karczma - Andrzej Pollak, the Commune Council of Nowa Karczma - Marek Wołoszyk together with the representatives of the Commune Council and the village leaders.



Despite the unfavorable weather and pandemic situation, the participants familiarized with the infrastructure and educational boards set in the path.

WASTEMAN Newsletter #4

Integrated Sustainable Waste Management Systems decreasing pollution discharges in the South Baltic area



The educational ecological path in Lubań is still an eco-innovation in the field of waste management. It aims to raise the ecological appreciation of the inhabitants and promoting biased pro-ecological behavior, encouraging in particular the segregation of waste, as one of the methods of environmental protection.

WASTEMAN Newsletter #4

Integrated Sustainable Waste Management Systems decreasing
pollution discharges in the South Baltic area

CONTACT INFORMATION

The Szewalski Institute of Fluid Flow Machinery

IMP PAN (Lead Partner)

Ul. Fiszerka 14

80-231 Gdańsk, Poland

Prof. Adam Cenian

Lead Partner Coordinator

Phone: +48 585225-276

E-mail: cenian@imp.gda.pl

Marcin Piasecki

Project Manager

Phone: +48 605288500

E-mail: mpiasecki@imp.gda.pl

www.imp.gda.pl/wasteman

Join WASTEMAN community & follow us:



facebook.pl/wastemansb



Instagram.pl/wasteman



[twitter.com/ WASTEMA94694129](https://twitter.com/WASTEMA94694129)