  

**Title of the Project: Anaerobic biorefinery for resource recovery from waste feedstock**

Project WasteValue is focused on circular economy and resource recovery challenge by deploying integrated bioprocessing to carbon and nutrients from organic fraction of municipal solid waste (OFMSW), food waste and fish sludge in order to make maximal use of these waste and residues. These fractions will be used to formulate a substitute for A-1 jet fuel, natural gas and agriculture fertilizer. We aimed at reaching strong impact with respect to the indicated co-products. The primary objective of the WasteValue is to explore and develop an innovative biorefinery scheme for the production of high performancebiofuels and a high-quality fertilizer from a variety of waste streams, thereby offering novel, research-based means of mitigating climate change and supporting the transition to a future sustainable bioeconomy.

The primary objective is achieved through the following secondary objectives:

1. optimizing the low-temperature pretreatment along with enzymatic hydrolysis of organic waste;

2. maximizing OFMSW and food waste conversion to C6-C8 carboxylic acids;

3. developing a cost-effective method for C6-C8 recovery and upgrading them to biojet fuels;

4. developing an optimized system for obtaining enriched biogas through biomethanation;

5. enriching the biorefinery’s effluent to achieve a highly valuable fertilizer;

6. integration and evaluation of the integrated biorefinery in terms of cost-efficiency;

7. performing an environmental sustainability analysis.

WasteValue will present the best possible solutions for effective organic waste management with regard to the environmental, social and economic aspects. The important aspect of emerging contaminants presence and fate, including microplastics, in the related processes will be also assessed. The technology will contribute to resource recovery and savings, improvement of economic aspects of waste management and multi- and interdisciplinary training and education of biorefinery aspects.

**Value of the project: 6 871 859.90 PLN**