

IMPACT OF WASTE AND POLLUTANTS ON ENVIRONMENT AND CLIMATE: COLLABORATIVE RESEARCH STUDY OF THE WASTEWATER DISCHARGE IMPACT IN THE BEGA-TIMIS RIVER SUB-BASIN

Goal of the project

The ultimate goal of this collaborative research study is the development of a robust methodology for the selection of water pollution control measures following the principles of eco-efficiency by developing a consistent DPSIR (Drivers-Pressure-State-Impact-Response) framework in Romania. The methodology is developed and will be validated in the Bega-Timis river (sub-) basin, which is part of the Danube river basin.

Short description of the project

DPSIR framework will be applied to and validated in the Bega-Timis river basin.

The main pressures will be identified and characterized with indicators based analysis, overall environmental objectives will be clarified with stakeholder analysis applying a willingness to pay/accept-approach, state and impacts in the main rivers will be modeled and assessed in a GIS application.

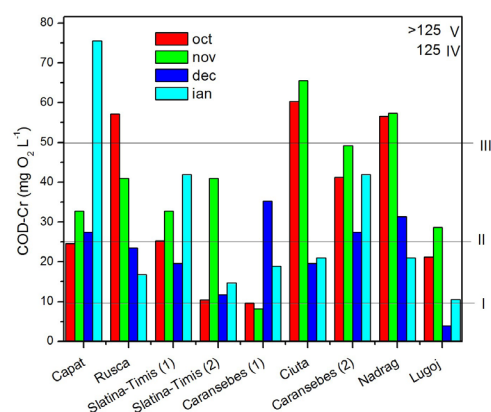
Eco-efficient options to improve the situation (technologies, operational and organizational) will be identified with a multi-criteria analysis approach.

This holistic combination is new especially for Romania as in general the focus has been on the deployment of technical systems and not comprehensively analyzing the situation using a DPSIR framework in combination with stakeholder involvement and uncertainty analysis.



Project implemented by

Swiss National Science Foundation (SNSF) and Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI)



Main activities

In this project, the activities are focused on the following work packages (WPs):

- WP1- Methodology and tool box development;
- WP2- Analysis of pollution sources, status and performance of the current wastewater treatment;
- WP3- Risks and impacts of the current and future emissions on the environment;
- WP4- Identification of eco-efficient environmental measures and technologies;
- WP5- Stakeholder analysis, information and capacity building;
- WP6- Dissemination of research results.

Implementation period

01.01.2013 – 31.12.2014

Results

A methodological DPSIR framework and sampling plan were developed based on available information from previous studies and implementation of the WFD in the study area.

A GIS (Geographic Information System) platform has been set up using a freeware application (QGIS) to provide a geographically explicit data basis required for the study, identify water quality 'hot spots' and lay the foundation for the subsequent analyses in the second year of the research.

The identification and analysis of water quality 'hot spots' in Timis-Bega sub-basin has been completed based on the methodological framework.

For a slaughterhouse company the QuickScan tool was already applied and potential measures for pollution mitigation and water consumption were identified.

Applicability and transferability of the results

The developed eco-efficiency based DPSIR framework will help achieving relevant European legislative requirements, most notably the Urban Wastewater Treatment Directive (UWWTD), the Directive for Integrated Pollution Prevention and Control (IPPC), its successor the Industrial Emissions Directive (IED), and the Water Framework Directive (WFD), by economically feasible means.

The results of this study should contribute to the enhanced planning the measures to maintain and improve water status at river basin level in order to reach the overall objective of WFD.

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Research centre

Research Centre for Environmental Science and Engineering

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