MORPHEUS
Model Areas for Removal of Pharmaceutical Substances in the South Baltic

Interreg South Baltic

EUROPEAN UNION

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MORPHEUS - Model Areas for Removal of Pharmaceutical Substances in the South Baltic

Final Conference Documentation

10 December 2019 in Lund, Sweden

With more than 60 participants representing stakeholders in the water sector, environmental protection agencies and research institutions from all over the South Baltic and wider Baltic Sea Region the MORPHEUS project realised its final conference in Lund, Sweden and partners presented the results of their three-year cooperation.

Michael Cimbritz, University of Lund

After welcoming words by Michael Cimbritz (University of Lund), Erland Björklund (Kristianstad University, MORPHEUS Lead partner) presented the background and objectives of the MORPHEUS project.

Erland Björklund, Kristianstad University

Afterwards, Ola Svahn (Kristianstad University, MORPHEUS Lead partner) introduced into the peculiarities and challenges of sampling and analysing methods for pharmaceuticals and presented applicable and innovative

solutions used within the MORPHEUS project.

Ola Svahn, Kristianstad University

Project partners from Klaipeda University and the University of Rostock then took the chance to present and discuss main project results on occurrence and consumption of pharmaceuticals in the coastal regions Skåne (Sweden), Mecklenburg (Germany), Klaipeda (Lithuania) and Pomerania (Poland).

Valdas Langas (Klaipeda University) presented the measured and analysed seasonal inflow and outflow concentrations of selected pharmaceuticals in 15 Wastewater Treatment Plants (WWTPS) located in the above-mentioned coastal regions. It became clear that despite geographical differences in the occurrence of detected

Valdas Langas, Klaipeda University

pharmaceuticals and high removal rates of certain compounds, there is still high potential to improve the removal efficiency of WWTPs by the introduction of advanced wastewater treatment techniques. For more details on occurrence data measured and analysed within MORPHEUS, please see the Deliverable 4.1.

Alena Kaiser and Jens Tränckner (University of Rostock) introduced consumption patterns for the MORPHEUS model areas. The project succeeded in not only estimating loads of consumed pharmaceuticals in the model areas in a high and temporal resolution. By breaking it down to selected WWTPs, their

Alena Kaiser, University of Rostock

catchment areas and real-connected inhabitants – instead of the usually applied personal equivalents (PE) – the MORPHEUS consumption model allowed for comparison of the estimated WWTP-related inflow of pharmaceuticals with direct inflow measurements. Moreover, by allocating regional consumption data to local levels and catchment areas of WWTPs, the consumption model approach offers potential for customised risk assessments and the identification of hot spots. This especially applies to areas

where local and regional monitoring of pharmaceuticals in the environment is very limited, e.g. in the eastern Baltic. For more details on consumption data modelled and analysed within MORPHEUS, please see the Deliverable 3.1.

Eventually, Małgorzata Szopińska (Gdańsk University of Technology) presented key linkages between pharmaceutical consumption and monitoring data (WP4) that allowed preliminary insights on the relation between removal efficiencies, treatment methods, WWTP sizes, inflow loads and/or sludge ages. For more details on key linkages and findings, please see the Deliverable 4.2.

Małgorzata Szopińska, Gdańsk University of Technology

The last session focused on the presentation of advanced treatment technologies. Aneta Łuczkiewicz (Gdańsk University of Technology) gave an overview of existing and advanced treatment technologies.

Furthermore, she presented "roadmaps for advanced treatment", i.e. proposals for concrete upgrades in selected WWTPs in the four model regions that can serve as a basis for further research and investment

Aneta Łuczkiewicz, Gdańsk University of Technology

decisions on a fourth treatment stage. It became clear that there is no one-size-fits-all solution, but that the technology must fit the size, location and existing technology of the WWTP. For more details on existing and advanced treatment technologies and investment roadmaps developed by MORPHEUS, please see Deliverable 5.1, Deliverable 5.2 and Roadmaps for uptake of advanced treatment for four model site WWTPs.

The subsequent panel discussion with representatives of regional authorities, WWTPs and EU policy actors gave opportunity to exchange on challenges, constraints and feasibility of not only monitoring the chemical burden of pharmaceuticals but also implementing advanced treatment in the Baltic Sea Region. Thereby it became clear that MORPHEUS contributed to close gaps on data and knowledge of PIE in the South Baltic and triggered necessary networking processes and knowledge exchange between science, policy actors and water companies in the region. Nevertheless, the conference also showed that further cooperation, research and knowledge exchange is needed to strengthen existing

initiatives and regional, national and EU policy approaches on the topic of PIE.

Panel Discussion with (from right to left)
Aistė Kubiliūtė, Lithuanian Environmental Protection Agency, LT
Jacob Möhring-Finder, State Agency of Environment, Nature Protection and Geology, Mecklenburg-Western Pomerania, DE
Angelo Gilles, REM Consult (Moderation)
Kristina Bereišienė, AB Klaipėdos Vanduo, LT
Michał Kosiniak, WOFIL Robert Muszański, PL
Máté Szalók, INTERREG South Baltic, Joint Secretariat
Maxi Nachtigall, PAC Hazards, Swedish Environmental Protection Agency, SE
Hauke Siemen, REM Consult (Moderation)

Finally, as an inspiration for further action Michael Cimbritz (University of Lund) gave an overview of the related INTERREG project Less-is-more and its current pilot testing of new, cost-effective technological solutions for removal of pharmaceuticals in three WWTPs in Denmark, Sweden and Lithuania. For more information go to: www.swedenwaterresearch.se/en/projekt/less-is-more-2/

After the conference, many participants stayed to attend a policy roundtable on Pharmaceuticals in the Environment organised by PA Hazards of the EU Strategy for the Baltic Sea Region. Many of the MORPHEUS findings were taken up in discussions on further action on PIE by a larger group of stakeholders that also included representatives of the EU Commission, the WHO and several national ministries and agencies of health and the environment as well as other projects that are part of the Pharma Platform of PA Hazards.