BIGDATA 4RIVERS
Interreg Europe

BIGDATA 4RIVERS aims to improve policies for European river basin and water management, thereby contributing to achieving the objectives of the EU's Water Framework Directive.

www.interregeurope.eu/bigdata4rivers

An interregional cooperation project for improving resource-efficient economy policies.

Project Partners

Intermunicipal Community of Alto Minho (PT)
Regional Development Fund on Behalf of the Region of Attica (EL)
Iberian Association of Riverside Municipalities of Duero River (ES)
Cluster DREAM Water & Environment (FR)
Kaunas University of Technology (KTU) (LT)
The National Union of Romanian Entrepreneurs (RO)
The County Administrative Board of Östergötland (SE)

Environment & resource efficiency

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https://www.interregeurope.eu/bigdata4rivers

Study Visit & exchange of experiences - DREAM Cluster

The DREAM Cluster organized virtually two webinars: the study visit on the 16th of June 2021 and the exchange of experiences on the 17th of June 2021. The first event was an opportunity to highlight the good practices adopted by the actors in Centre-Val de Loire Region and thus the diversity of initiatives and actors working for a smarter water management.

The discussions will support with designing the operational action plans.

On the 16th of June, 6 good practices from the Centre-Val de Loire Region were presented by French speakers promoting the collaboration within several projects and initiatives.

At the end of these discussions, action plans will then emerge which will include in particular concrete actions and proposals on how to include them in the policies addressed by the project.

Among the good practices presented, the project JUNON "Digital Twins of the plain observatory" has been highlighted by its project manager. The ambition of this unique project in the Centre-Val de Loire Region is to create a center of digital research for continental environments (agricultural, urban, forestry and fluvial) and, regarding water, to develop a water digital twins.

Started in June 2021, some twenty regional facilities are involved with 4 companies et 5 research organisms. Funded by different regional, national and European financing tools (CPER, ARD, FEDER), the project aims to:
▪ Improve the management of regional natural resources
▪ Better predict to help the harmonious and sustainable development of our territory

▪ Stimulate collaboration and sharing to create new applications

Regional monitoring in Sweden

The summer months for most of Europe's inhabitants is a time for vacation and in Sweden the time for swimming in lakes, enjoying the sun and experiencing the vast archipelagos in the larger lakes and the Baltic Sea. However, enormous masses of green sludge can quickly turn the visit to the beach anything but the summer fun you expected. Since the region of Östergötland is located on productive lands there are effects seen from these activities both in streams, lakes and in the coastal areas of the Baltic sea. Eutrophication is a significant environmental problem in a large part of the county's lakes. A comprehensive monitoring of eutrophication parameters is therefore a priority. Sampling of hydrochemistry and phytoplankton during the late summer complement other environmental monitoring programs as well as recipient control, and provide an overall picture of, above all, eutrophication problems.

Algal blooms are a part of our Swedish summers due to increased amount of light and higher water temperatures in lakes during the warmer period and an excess of nutrients necessary for growth in primary producers. As a consequence, a main object in managing water quality in our region is managing release of nutrients by taking measures such as structure liming in agricultural lands close to waterbodies or creating wetlands and dams to hold nutrients from sources.

Last May 2021, a series of meetings took place in virtual form in the BIGDATA 4RIVERS project. The main reason was the site visit to Romania by the members of the project and their partners, and on the other hand, the exchange of experiences between the member countries of the consortium.

These days had a clear common thread, information and communication technologies in the field of water management and monitoring, were developed throughout the 11th and 12th of the month. On the first day, the representative of Romania, Cristóbal Toro made a brief presentation of the country and the state of the art regarding the project. In the same way, and on behalf of Romania, a very interesting presentation was made on "IoT solutions in cloud monitoring and control of wastewater treatment plants" by Professor Stelian Brad from the Technical University of Cluj-Napoca and president of the Cluster IT Cluj.
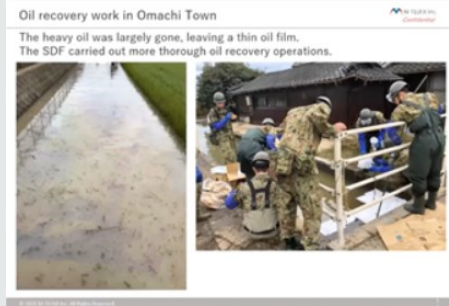
Very illustrative of the central theme of these conferences were the interventions of the partners from Spain who spoke about automation of flood risk modeling in basin headwaters through Artificial Intelligence and Big Data techniques, and Portugal with a presentation on the progress of a pilot project on irrigation Management in Portugal within SIGIMAP.

The morning of presentations was completed by Greece and Lithuania who presented "Water quality monitoring with the use of robotic boats" and a summary of the state of the art in ICT in Water management in Lithuania, respectively.

Throughout the second day of meetings, exchanges of experiences and presentations of good practices took place by the members of the project consortium and their respective local partners. So first thing in the morning, the host opened the session with a Good Practice entitled "Integrated wastewater management" by Aurelia Onet, Professor of the University of Oradea.


Oil recovery work in Omachi Town

The heavy oil was largely gone, leaving a thin oil film. The SDF carried out more thorough oil recovery operations.

BIGDATA 4RIVERS explored the use of nanotechnology

During the site visit organized by the Romanian partner NURE (Uniunea Nationala a Patronatului Roman), a very interesting presentation was carried out by the R&D director of a Japanese nanotechnology R+D company live from Japan. This company is a partner of a research and technology transfers initiatives implemented in Romania through the Center for Innovation, Research and Technology Transfer "nano for health & clean environment".

This participation was received with great interest by the members of our project consortium because real cases were presented in which these solutions were implemented, like the one shown in the bellow image (Oil recovery work in Omachi Town). Also, the project partners could see the potential of nanofiber and the possible solutions to water pollution problems in a live real demo carried out by the Japanese researchers (Please click here to watch a demo)

See more...
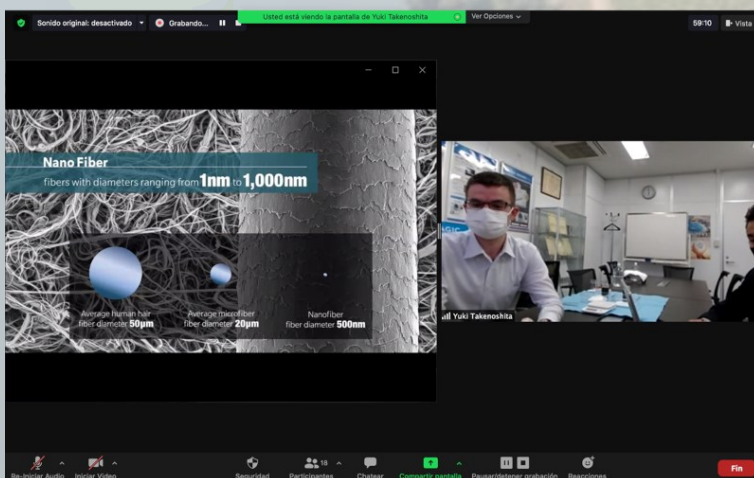
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Study visit and Exchange of Experience in Lithuania

On October 14th and 15th, in the BIGDATA4RIVERS project the Study visit and Exchange of Experience events took place in Lithuania. The events were organized virtually by Institute of Environmental Engineering of Kaunas University of Technology. The main reason was the site visit to Lithuania by the members of the project and their partners, and the Exchange of Experiences in the field of the Water resources management between the member countries of the consortium.

On the first day, the representative of the Environmental Protection Agency under the Ministry of Environment, head of department Mr. Gintautas Sabas made the presentation on the Cadastre of rivers, lakes and ponds of the Republic of Lithuania. A very interesting presentation was made on the Good practices "Floating island for nutrient removal in Lithuania" by professor Artūras Razinkovas-Baziukas from Klaipeda University and "Adjustment of MesoHABSIM model for evaluation of ecological conditions in the Lithuanian rivers" by senior researcher Vytautas Akstinas from Laboratory of Hydrology, Lithuanian Energy Institute. The Study visits on the Innovative solutions in wastewater treatment: "Pilot testing of activated carbon for removal of pharmaceuticals and other emerging substances" and "Innovative solutions in stormwater management - Ecological adapted stormwater investments in Kretinga" were presented by technologist of the JSC "Kretingos Vandenys". As well the Good practice on GIS for water resource management in JSC "Kaunas Vandenys" were briefly presented by the event moderator professor Jolanta Dvarioniene from Kaunas University of Technology.

On the second day, very interesting experiences in the field of water resources management were shared by project partners and their stakeholders. The Stormwater management practices was presented by Sara Lönnerud from Unit for water, Department of Environment and Nature, County Administrative Board from Sweden. Very interesting presentation about the monitoring in the Asopos River Basinwas presented by PhD candidate Varvara Nikolopoulou from Laboratory of Analytical Chemistry, Department of Chemistry, University of Athens from Greece.

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Monitoring of Asopos river basin waters

Monitoring activities over several decades have revealed the ubiquitous presence of organic contaminants in environmental compartments. Since 1969, Asopos river basin, located in Sterea Ellada, north of Athens, has been the focus of many environmental studies, mainly due to the extensive industrial and agricultural activities that take place in this area. Potential untreated industrial discharges into the river, were linked to the detection of high Cr(VI) concentrations, causing potential carcinogenic effects. However, there was a lack of knowledge regarding the occurrence of chemicals of emerging concern and their potential risk to the ecosystem in the area of Asopos River Basin. Therefore, an extended monitoring study for the determination of inorganic and organic chemicals was needed to assess the quality of Asopos river Basin.

The aim of the project was the assessment of Asopos river Basin water quality, through the investigation of inorganic and organic chemicals. An in-depth contamination survey was carried out based on the profiling of WFD 2013/39/EC priority substances and the screening of emerging contaminants in different environmental compartments. The sampling campaign included the collection of a) water samples and sediments from Asopos river, b) groundwater samples from 6 municipalities of the basin area and c) drinking water of Mavrosouvala sources and its water network.

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