



RESET

Interreg Europe



European Union
European Regional
Development Fund

Cooperation between textile industry and universities in solving problems of water consumption and energy savings in Lodzkie Region

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Lodzkie as a textile center of Poland



Lodz University of Technology
Faculty of Material Technologies and Textile Design



Department of Material and Commodity Sciences And Textile Metrology



Lodz University of Technology
Faculty of Material Technologies and Textile Design



Branches of study



Textile Engineering

Pattern Designing

Material Engineering

Education Of Technology And Information
Engineering

Health And Safety At Work *

Commodity Science *

* interfaculty₃



Specializations

1st grade
(BSc and
Bachelor)

Mechanical Textile Engineering

Chemical Textile Engineering

Science of Commodities and Textile Marketing

Clothing Technology

Textile Architecture

Architecture of clothing

Visual communication and printing techniques

Safety and Hygiene at Work

Polymer Materials Engineering



Specializations

**IInd grade
(MA)**

Innovative technologies in Textile Engineering

Engineering of Textile Designing

Clothing Technology

Engineering of quality and humanoecology of textiles

Architecture of textiles

Informatic Technologies

Engineering of polymer composite materials

Lodzkie as a textile center of Poland

33% of the textile industry in Poland is located in the Lodzkie region,

23% of the population is employed in manufacturing the Lodz region,

10% of the value of production sold the manufacturing sector in the Lodz region comes from the textile sector

Lodzkie as a textile center of Poland

- **Project of LUT and the European Regional Centre for Ecohydrology under the auspices of UNESCO**

New filtration system for ground water treatment.

- **Project of LUT and Bilinski Dyeing Factory**

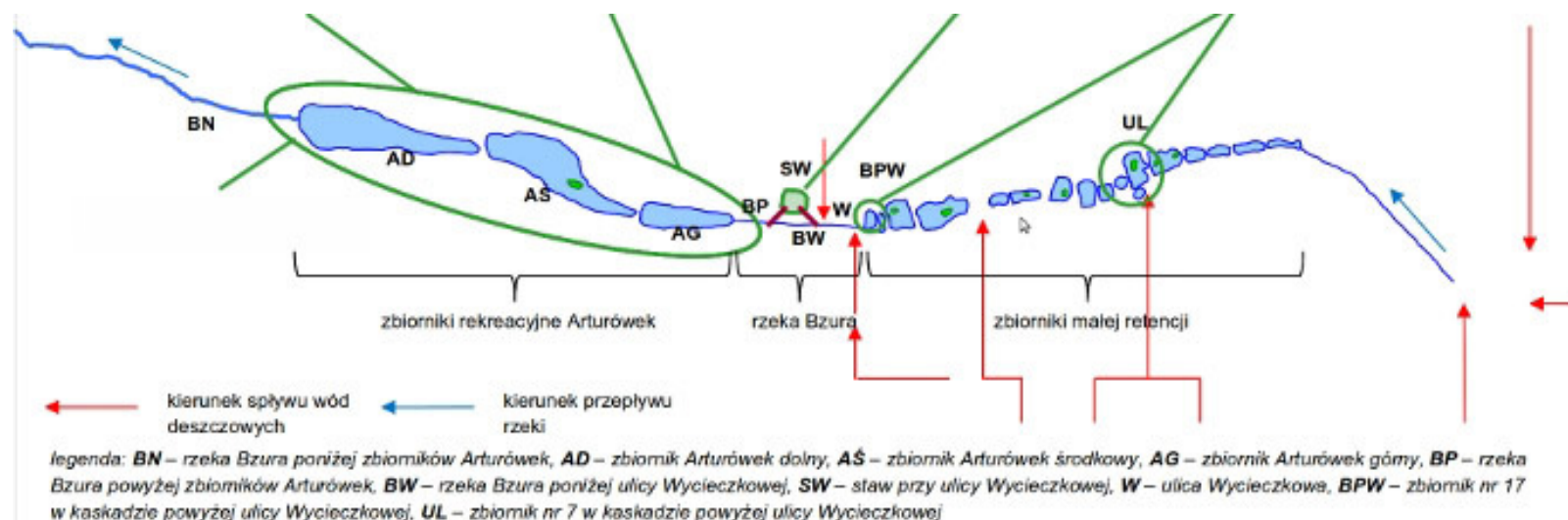
Developing new biodegradable dye adsorbers for the waste water purification.

Lodzkie as a textile center of Poland - Colaboration with the ERCE - UNESCO

BZURA RIVER IN LODZ

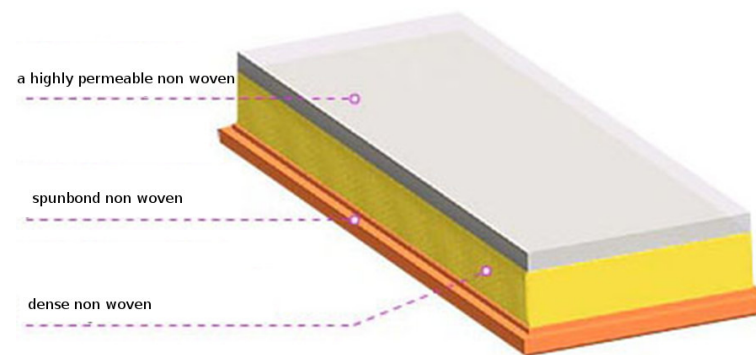
Bzura River is one of the eighteen of rivers in Lodz city.

Studies have shown that especially Bzura river flowing through city is charged by **phosphorus compounds and heavy metals** entering from the street



Lodzkie as a textile center of Poland - Colaboration with the ERCE - UNESCO

BZURA RIVER IN LODZ



1st layer – needled nonwoven (150 g/m²)

2nd layer – needled nonwoven (600 g/m²)

3th layer – spunbond nonwoven (50 g/m²)

Lodzkie as a textile center of Poland - Colaboration with the ERCE - UNESCO

BZURA RIVER IN LODZ



Filter placed on the rack at autumn season

Size of the frame 12m x 0.7m
Weight of the filter 6.72 kg

Preparatory work for the installation of new sets of filters



Lodzkie as a textile center of Poland - Colaboration with the ERCE - UNESCO

The resulting system has been served as filter in an environment of the river during the whole biological cycle (1 calendar year) without any significant losses of mechanical properties.

It was confirmed that the placement of this type of filtration system at the river stream has beneficial effect on water quality below the filtration system.

Preliminary results indicated that on the filter system a biofilter barrier also is forming improving the filter capacity.

Analysis of the filter system composition after a period of use, confirmed the potential use of such systems, as fertile ground for growing crops.

Lodzkie as a textile center of Poland - Colaboration with Bilinski Dyeing Factory

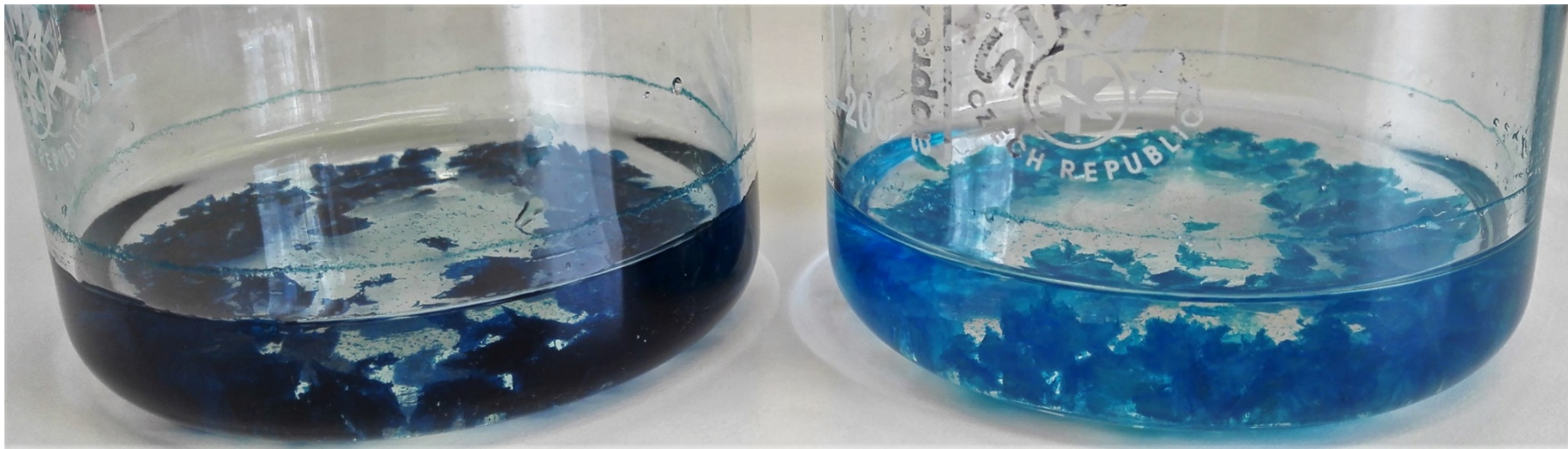
Aim of the collaboration was developing new biodegradable dye absorbers for the waste water purification

- a naturally occurring polysaccharide
- biodegradable
- the unique properties of sorption
- large inner surface



Chitosan based filtration beads

Lodzkie as a textile center of Poland - Colaboration with Bilinski Dyeing Factory



Sorption capacity for the tested filters is more than 400 mg/g, which far exceeds the approximate range of the content of pollutants in typical waste water



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Thank you!

Questions welcome



Project smedia
