



ARDHEL

**electronics & mechatronics & informatics
for the protection of the environment**

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**II. Slovenia - Kosovo Business Conference, June 07, 2016
Kosovo investments & development and project finance possibilities**

Research & development for custom solutions

NONSTANDARD LABORATORY EQUIPMENT

Automatic water sampler
&
Online water quality monitoring



Electrolytic cell
&
Current generator



Soil analysis



SOLUTIONS FOR THE ENVIRONMENT

Freshwater bodies protection



Advanced wastewater treatment



Contaminated soil remediation

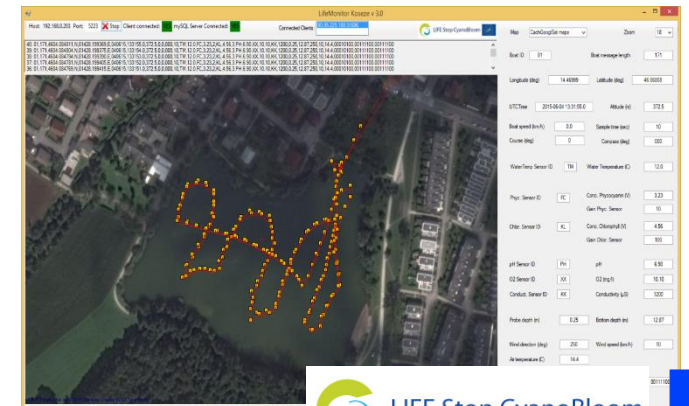
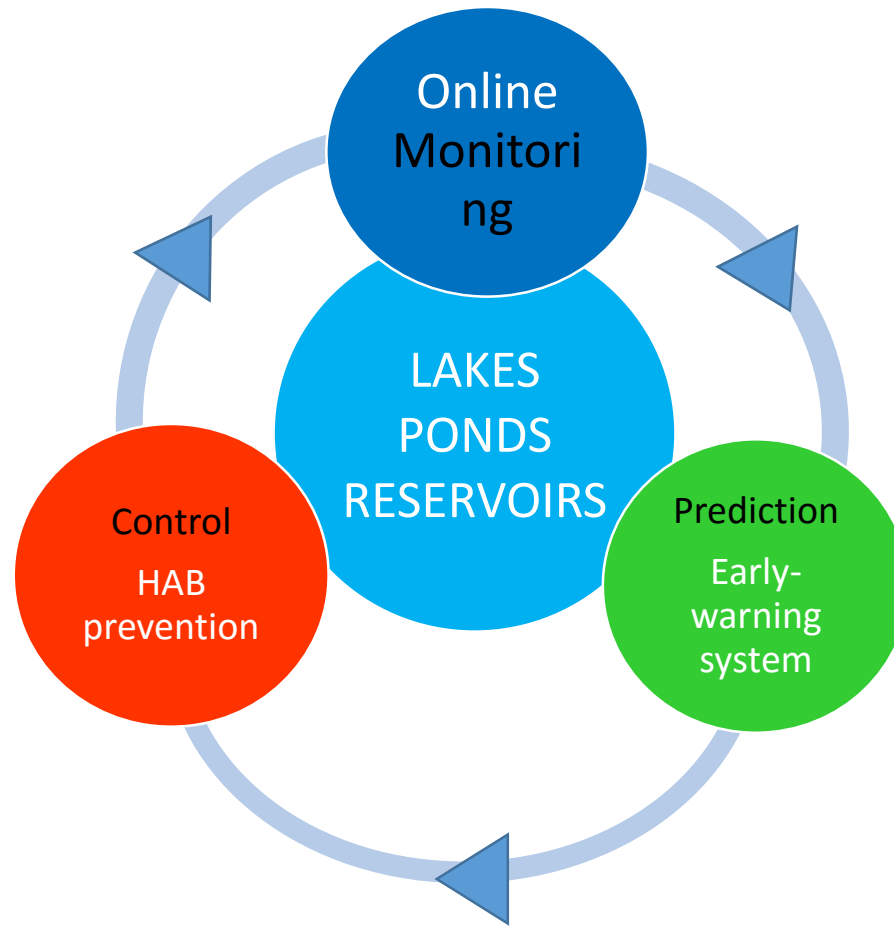
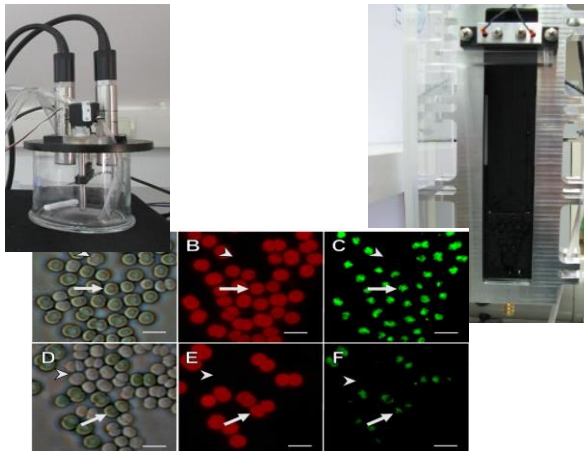


Protection of water bodies

Robotic Floating Platform

Detection and **localized** control of cyanobacteria and algal blooms

Water quality monitoring → **Early warning system** → **Harmful Algal Bloom (HAB) prevention**



Robotic floating platform - Application potential

TYPICAL APPLICATION

- Eutrophic lakes and accumulations
- Fish ponds & aquacultures
- Bathing waters
- Drinking water reservoirs
- Industrial reservoirs



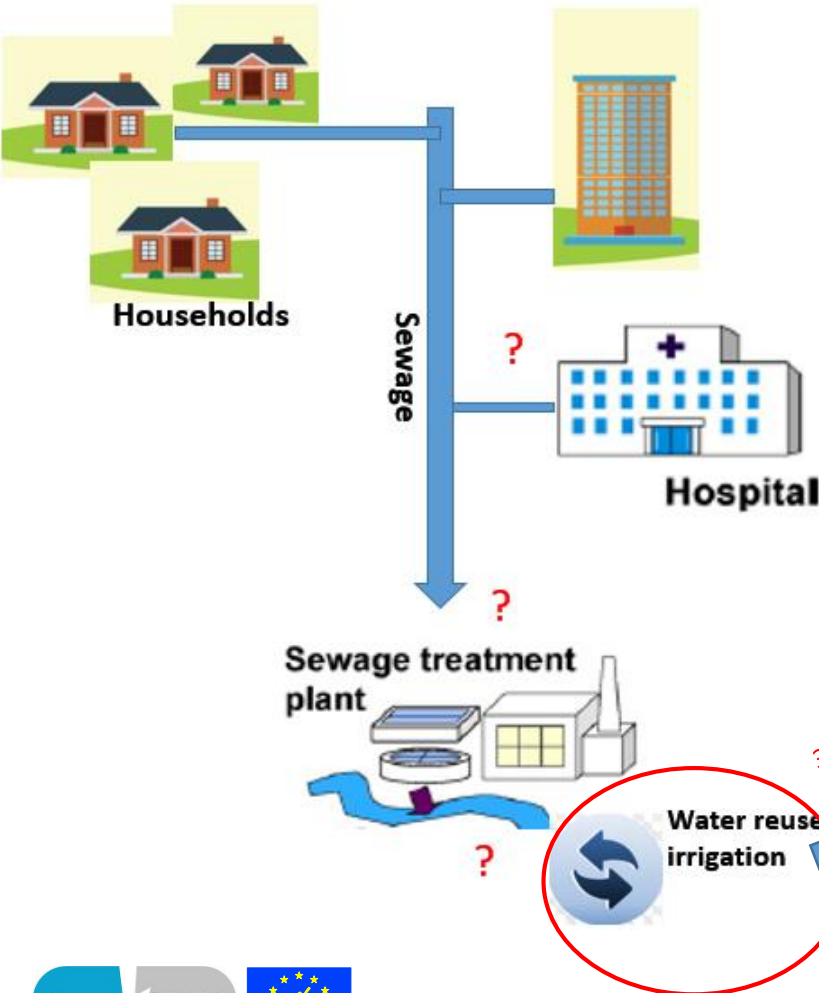
EFFECTS

- Reduced algal blooms
- Degradation of cyanotoxins
- Reduced or no need of chemicals and algaecides
- Improved water transparency

Advanced wastewater treatment

Solutions for high water quality needs & water scarcity

High environmental standards / Water Reuse / Irrigation



Final steps of wastewater treatment

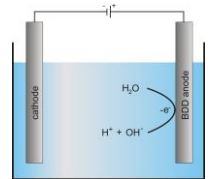
Degradation of micro pollutants (e.g. **Active Pharmaceutical Ingredients** form water)



Electrochemical oxidation in electrolytic cell



Advanced electrodes with high capacity of production of oxidants



EFFECTS

- High treatment capacities
- Disinfection
- Detoxification
- Removal of residual compounds

Remediation of contaminated soil

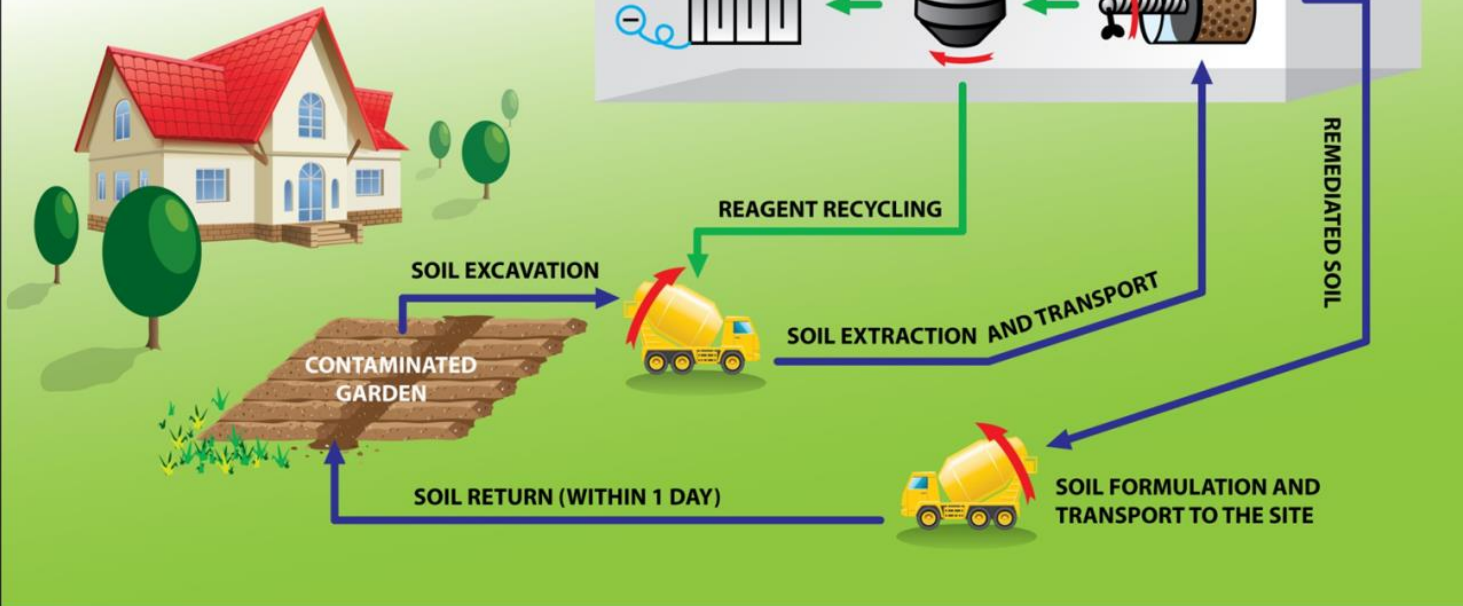
Innovative soil washing technology

Removal of hazardous metals while retaining soil structure and fertility

ENVIT

REMEDICATION CONCEPT FOR URBAN GARDENS

- Leaching of hazardous metals with chelating agent
- Recycling of processed water



PATENTS:

- Slovenian patent P 2011002016
- US patent application no. 14/125,094
- European Regional Phase of PCT/SI2012/000039

SOLUTIONS FOR:

- Contaminated farming soil
- Dredged sediments
- Industrially contaminated soil

HOW DO WE DEVELOPE PRODUCTS FOR END-USERS?

Co-financed demonstration projects with the help of the European Financial Instrument for the environment – LIFE
Demonstration of technologies for the implementation of EU environmental and climate goals



- *Project application documentation*
- *Project coordination and implementation*
- *Demonstration of the project results*

• Innovative technology for **cyanobacterial bloom control**: “LIFE Stop CyanoBloom”, LIFE12 ENV/SI/000783 <http://lifestopcyanobloom.arhel.si>



• Demonstration of innovative **soil washing technology for removal of toxic metals** from highly contaminated garden soil: LIFE ReSoil”, LIFE12ENV/SI/000969 <http://liferesoil.envit.si>



• **Degradation of pharmaceuticals in wastewaters** from nursing homes and hospitals: LIFE PharmDegrade, LIFE13/ENV/SI/000466 <http://lifepharmdegrade.arhel.si>



ARHEL

Customised innovative solutions for end-users needs

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Robotic vessel awarded in 2015

The best innovation from Micro-companies,
SPIRIT Slovenia, Ministry for economic
development and technology, Republic of Slovenia

**Special award for innovation with societal
impact,**
SPIRIT Slovenia, Ministry for economic
development and technology, Republic of Slovenia

Europe in my region award,
European Commission

