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## SWARM project

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**Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders**  
Project number: 597888-EPP-1-2018-1-RS-EPPKA2-CBHE-JP





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## Basic Information

<b>Contract number</b>	597888-EPP-1-2018-1-RS-EPPKA2-CBHE-JP
<b>Project acronym</b>	SWARM
<b>Project name</b>	<i>Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders</i>
<b>Project duration</b>	15th November 2018 - 14th November 2021
<b>Programme</b>	Erasmus+ Call for Proposals EAC/A05/2017
<b>Total cost</b>	931,289.00 €
<b>Coordinator</b>	University of Niš, Serbia Univerzitetski trg 2, 18000 Niš, Serbia
<b>Project website</b>	<a href="http://www.swarm.ni.ac.rs">www.swarm.ni.ac.rs</a>
<b>Project e-mail</b>	<a href="mailto:swarmuni@gmail.com">swarmuni@gmail.com</a>

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## Motivation

One of the major environmental and sustainability challenges of the 21st century is **preserving and ensuring the most precious resource – water**. Water as the basic resource incorporated into functioning of different sectors requires **innovative, interdisciplinary, structural, and trans-boundary approach** - strong coordination and cooperation across countries and across sectors. Carefully manage of this **limited resource** is urgent due to plenty of statistical facts.

WB countries should above all **develop new or improve the existing education** in this field, to **raise technical capacity** and accomplish creation of **more efficient systems** in the field of **water resources management**.



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## Overall Broader Objective

**Education of experts for water resources management in the Western Balkans (WB) in line with the national and EU policies.**

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## Specific Objectives

- **Improve the level of competencies and skills in WB HEIs** by developing new and innovative master programmes in the field of water resources management (WRM) in line with the Bologna requirements and national accreditation standards
- **Design and implement seven new and up-to-date laboratories** in WB partner HEIs in cooperation with EU project partners
- **Develop and implement LLL courses for the water sector** in line with EU Water Framework Directive

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## Sustainability

- **Seven new and improved study programmes in WRM** implementing 32 new/modernized subjects at the WB partner HEIs.
- **New training programme in WRM** with training materials for water resources sector developed and conducted.
- **Retrained WB teaching staff** with up-to-date knowledge in WRM to teach on the new/improved master programmes.
- **Advanced teaching and learning process introduced.**
- **Introduced new laboratory equipment and software** necessary for the continuation of the study programmes.

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# Consortium

## EU partners

-  University of Natural Resources and Life Sciences, Vienna (BOKU, Austria)
-  Norwegian University of Life Sciences (NMBU, Norway)
-  Aristotle University of Thessaloniki (AUTH, Greece)
-  University of Architecture, Civil Engineering and Geodesy (UACEG, Bulgaria)
-  University of Rijeka, Faculty of Civil Engineering (UNIRIFCE, Croatia)
-  Universidade de Lisboa (UL, Portugal)

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## Western Balkan partners

-  University of Niš (UNI, Serbia)
-  University of Novi Sad (UNS, Serbia)
-  University of Sarajevo (UNSA, Bosnia and Herzegovina)
-  Dzemal Bijedic University of Mostar (UNMO, Bosnia and Herzegovina)
-  University of Pristina in Kosovska Mitrovica (UPKM, Kosovo\*)
-  Technical College of Applied Sciences Urosevac with temporary seat in Leposavic (TCASU, Kosovo\*)
-  University of Montenegro (UoM, Montenegro)
-  Public Water Management Company "Vode Vojvodine" (PVMCVV, Serbia)

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**Associated partner**

- SOFIYSKA VODA AD
- Association for Water Technology and Sanitary Engineering
- Association Resource Aarhus center in B&H
- Regionalni vodovod Crnogorsko primorje

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# Work Packages

**Preparation WP1:** Analysis of water resources management in the Western Balkan region  
Leader: **U niversity of Natural Resources and Life Sciences, Vienna (BOKU)**



**Development WP2:** Development of competence-based curricula aligned with EU trends  
Leader: **Aristotle University of Thessaloniki (AUPH)**

**Development WP3:** Development of trainings for professionals in water sector  
Leader: **U niversity of Pristina in Kosovska Mitrovica (UPKM)**

**Development WP4:** Implementation of developed master curricula and trainings  
Leader: **Norwegian University of Life Sciences (NMBU)**

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## Work Packages



**Quality Plan WP5:** Quality assurance and monitoring  
Leader: **Universidade de Lisboa (UL)**

**Dissemination & Exploitation WP6:** Dissemination and Exploitation  
Leader: **University of Niš (UNI)**

**Management WP7:** Project management  
Leader: **University of Niš (UNI)**

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## Outcomes

- Report on WB regional issues related to WRM
- Report on EU water policies and innovation and EU recommendations and legislation in water sector
- Report on master curricula related to WRM in EU and WB partner countries
- Workshop on innovative practices in the EU water sector: barriers and opportunities
- Report on innovative practices for WRM in EU

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## Outcomes

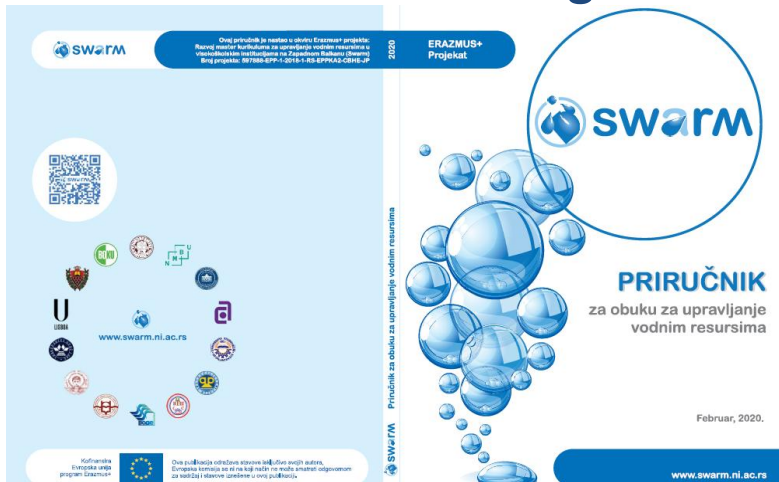
- Catalogue of competencies
- Report on development of specific competencies and learning outcomes of curricula
- Theme-based training of teaching staff for acquiring new teaching and learning methods (UACEG, NMBU, UNIRIFCE, AUTH, UL, BOKU)
- 7 laboratories equipped
- Report on LLL courses for professionals in EU water sector
- Survey of water sector needs in WB
- Register of companies in the field of WRM in the WB countries
- Handbook for training in water resources management

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## Handbook for the training in WRM




<http://www.swarm.ni.ac.rs/activities?id=53>

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## Webinar – Frontiers in WRM

**Webinar**  
**Frontiers in Water Resources Management**  
 Tuesday, 5th May 2020

9:00 Greetings and Welcome  
 Milan Godić, University of Nis  
 Zakhar Maletskiy, Norwegian University of Life Sciences

9:05 Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders (SWARM)  
 Milan Godić, University of Nis

9:15 Perception of Strengths and Weaknesses towards Improving Water Resources Management in the Western Balkans  
 Michael Tritthart, University of Natural Resources and Life Sciences, Vienna

9:30 Water Resources Management issues in Bosnia and Herzegovina  
 Emina Hadžić, University of Sarajevo


9:45 Analyse of water sector needs in the Western Balkans  
 Milan Godić, University of Nis


10:00 Water Resource Management in Cold Climate  
 Harsha Ratnaweera, Norwegian University of Life Sciences

6 panelists  
 75 participants from 28 countries

**Number of participants**

Country	Number of participants	Percentage
Norway	8	10.7%
Serbia	5	6.7%
Bosnia and Herzegovina	13	17.3%
Greece	3	4.0%
Austria	3	4.0%
Croatia	3	4.0%
Sri Lanka	3	4.0%
Germany	3	4.0%
Russian Federation	3	4.0%
Ukraine	19	25.3%
India	13	17.3%
Other countries	12	16.0%


Organised by: 

In the framework of: 


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<http://www.swarm.ni.ac.rs/activities?id=55>

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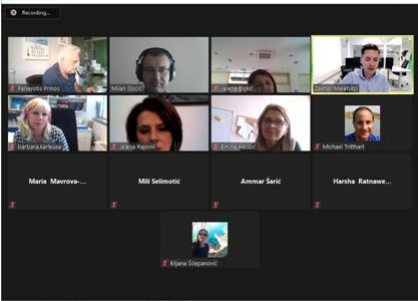


## Inter-project coaching meeting

18 panelists  
 57 participants from 16 countries

Two main topics:

- Innovation in teaching and learning methods
- Achieved synergy with a non-academic sector



**Number of participants**

Country	Number of participants	Percentage
Norway	6	10.5%
Serbia	3	5.3%
Bosnia and Herzegovina	3	5.3%
Greece	3	5.3%
Austria	3	5.3%
Croatia	3	5.3%
Netherlands	7	12.3%
Ukraine	6	10.5%
India	13	22.8%
Kenya	2	3.5%
Other countries	12	21.1%

<http://www.swarm.ni.ac.rs/activities?id=60>

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# Symposium

Link for registration:

<https://docs.google.com/forms/d/1XBlqs6zDOx6PA4dlvnqnEXLZLCNDSFpJIQvjQCDO-zk/edit>

<http://www.swarm.ni.ac.rs/symposium>

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**International Symposium**

**Water Resources Management: New Perspectives and Innovative Practices**

September, 23<sup>rd</sup>- 24<sup>th</sup> 2021  
Novi Sad, Serbia

ORGANIZER  
Faculty of Technical Sciences  
University of Novi Sad

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