

# MINUTES OF THE WEBINAR – FRONTIERS IN WATER RESOURCES MANAGEMENT

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University of Nis



Strengthening of master curricula in water resources management  
for the Western Balkans HEIs and stakeholders

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## 1. Introduction

This document reports the webinar – Frontiers in Water Resources Management of the Erasmus+ Capacity Building in the Field of Higher Education project „Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders“ (SWARM), held on the 5th May 2020. The meeting was chaired by Milan Gocić and Zakhar Maletskyi.

The webinar was organized by the University of Nis (UNI), Norwegian University of Life Sciences (NMBU), University of Natural Resources and Life Sciences, Vienna (BOKU), Aristotle University of Thessaloniki (AUTH) and University of Sarajevo (UNSA).

The purposes of the webinar were to:

- Share projects' outcomes and future ideas;
- Focus on knowledge exchanges with partners;
- Represent of water resources management issues.

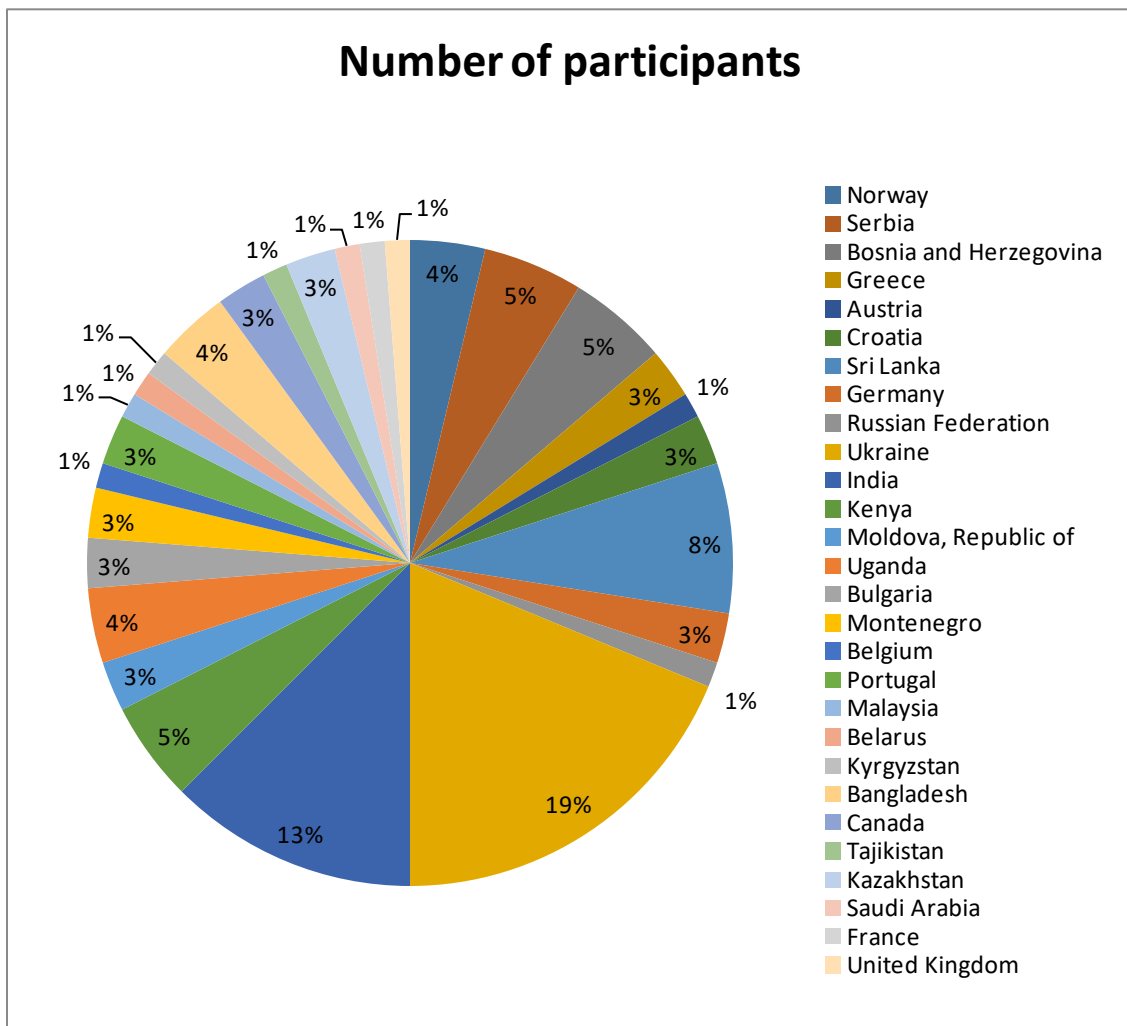
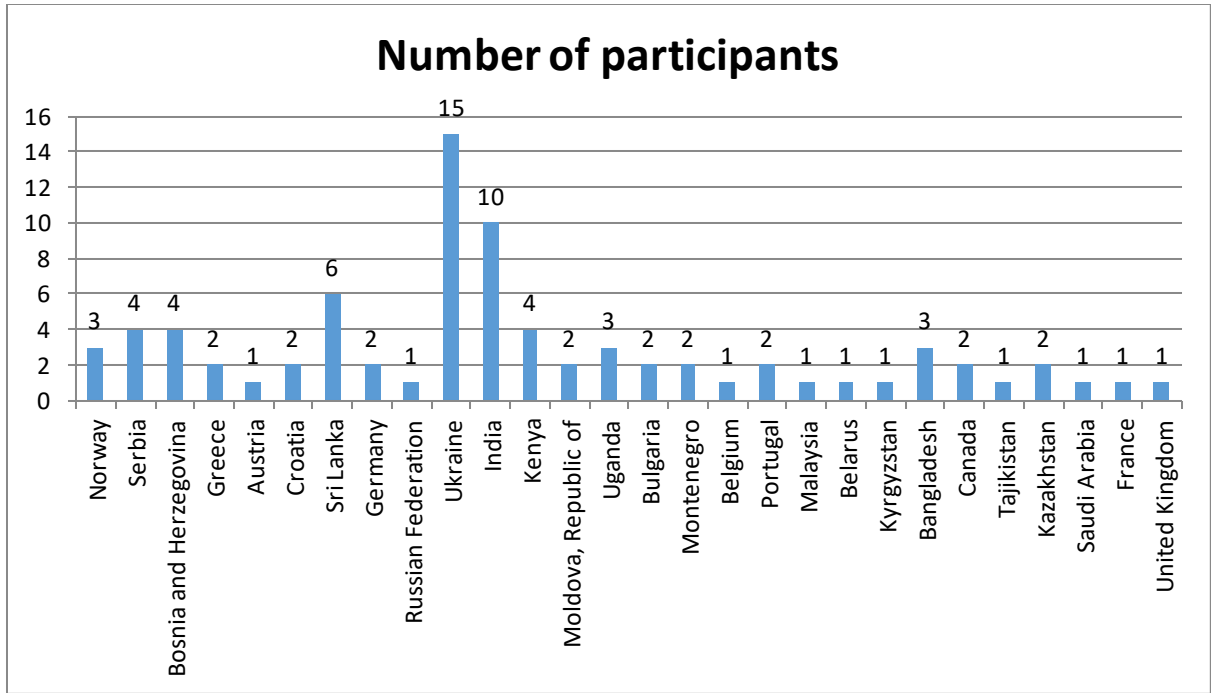
## 2. Webinar in general

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.

The webinar presented different interdisciplinary research experiences, in order to create a dialogue to point up solutions and synergies related to sustainable and fair water resources management, highlighting strengths, potentialities, and critical issues.

In total 111 participants registered, 75 attended from 28 countries (Norway, Serbia, Bosnia and Herzegovina, Greece, Austria, Croatia, Sri Lanka, Germany, Russian Federation, Ukraine, India, Kenya, Republic of Moldova, Uganda, Bulgaria, Montenegro, Portugal, Belgium, Malaysia, Belarus, Kyrgyzstan, Bangladesh, Canada, Tajikistan, Kazakhstan, Saudi Arabia, France, United Kingdom) or 68% attendance rate.

The participants were from different specialties i.e. water and wastewater treatment, water resources management, water and wastewater transport and from different professions i.e. academia, utilities, consultants, policy makers.



Panelists:

**Milan Gocić**, University of Nis

**Zakhar Maletskyi**, Norwegian University of Life Sciences

**Michael Tritthart**, University of Natural Resources and Life Sciences, Vienna

**Emina Hadžić**, University of Sarajevo

**Harsha Ratnaweera**, Norwegian University of Life Sciences

**Charalampos Skoulikaris**, Aristotle University of Thessaloniki

Summary:

Webinar started at 9 and finished at 11. After each presentation panelists answered the questions (in total 11).

**Milan Gocić** opened the welcoming session and gave the floor to **Zakhar Maletskyi** who presented webinar technical details.

**Milan Gocić** presented the SWARM project - Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders highlighting the achieved results and working atmosphere.

**Michael Tritthart** presented perception of strengths and weaknesses towards Improving Water Resources Management in the Western Balkans. He presented the results of SWOT analysis achieved during the workshop held in Vienna on 9 May 2019. SWOT can be summarized as:

## Strengths:

- Great trust in the human potential and the education system in the WB partner countries
- Resilience inherent to several generations of people after enduring the Balkan Wars is identified as an important asset

## Weaknesses:

- Lack of water-related governance identified as major concern
- Development of curricula and LLL courses reduce associated weaknesses over time, with well-educated stakeholders entering the labor market and developing policies
- Corruption can hardly be addressed on an academic level

## Opportunities:

- Top nomination: advantage of applying existing knowledge
- Technological aspect of novel information systems, data science and digital tools received nearly a similarly high ranking
- Possible bias due to technical background of many participants

- Cooperation of countries with common history: key opportunity

#### Threats:

- Corruption perceived as top threat
- Lack of educated people in decision-making positions is directly addressed by the new and updated curricula developed
- Higher political stability could be expected upon accession of the WB region towards European Union membership

Also, after webinar discussion we concluded that under threats we should include risks such as pandemics, terrorism and other relevant risks.

**Emina Hadžić** presented Water Resources Management issues in Bosnia and Herzegovina. She briefly described Integrated water resources management (IWRM), historical developments towards IWRM and the challenge for water resources management. Today's state of the water legislation of Bosnia and Herzegovina has distinct specifics that distinguish it from national water systems of neighboring countries, or the countries of Southeastern Europe.

According to existing legislation the key competences for water resources management in Bosnia and Herzegovina are distributed at the following levels:

- level of Bosnia and Herzegovina;
- level of Entities and Brčko District;
- level of cantons (only in Federation of Bosnia and Herzegovina);
- level of local administration (cities and municipalities).

The boundary of the entities, as well as the cantonal boundaries, disintegrated river basins. It has a negative impact on the integral and sustainable water resources management across the entire territory of the state.

Although complicated and complex due to the political system, water resources management planning in Bosnia and Herzegovina can be called flexible and interactive at Entity levels.

This planning directs development towards potential resources but leaves enough space for the implementation of adaptive solutions. First, water resources are analyzed, the scope of needs is roughly considered, defining possible conflicts of interest of stakeholders, protection and regulation of waters; define potential conflicts of interest in the water using activities, use of space; define priorities in conflict situations.

One can say that this type of planning is characteristic for the countries of regulated market economies, due to the wide range of ownership relations. This type of planning has to be elastic, oriented to the development and allocation of capital towards resources, while not imposing unnecessary rigid restrictions, proved to be the only possible in a country like Bosnia and Herzegovina.

**Milan Gocić** presented the analyse of water sector needs in the Western Balkans and showed results achieved from the online questionnaire containing 12 questions divided into 5 groups (General details; Job Responsibilities as regards to Water Management in the organization;

Awareness, Knowledge to Water Resources Management Policy; Training Need; Technical Training). He highlighted the following recommendations:

- Increase awareness on the strategic documents, action plans and procedures in the water resources management.
- Improve exchanging of the best-practice experiences and innovative solutions in WRM.
- Strengthen previously acquired knowledge and improve practical skills through the organization of multiday theme-based trainings.
- Improve the role of water-related companies in community participation.

According to the presented analyse, the SWARM team will develop LLL courses for professionals in water sector such as

1. Water management and climate change adaptation
2. Water – scarce resource
3. Flood and drought risk management
4. Managing the quality of stormwaters
5. Wastewater treatment and reuse of treated wastewater
6. IT tools in the water resources management
7. Innovation in the water sector – Model of managing a process of water supply network repair using fuzzy logic and fuzzy inference

**Harsha Ratnaweera** presented Water Resource Management in cold climate and highlighted the following

- Groundwater is usually a good source – groundwater from below permafrost layer is less polluted.
- Surface water with variable quality: more stable in winters and more polluted in summers (freezing/thawing-processes, erosion etc).
- Climate Change impacts: mostly negative and but there are positive impacts on water supply and WWT.
- Higher repair and maintenance costs in Cold Climates.
- Higher temperatures are in general favourable for treatment processes.
- Climate change results in challenges with the volumes and WW temperatures.
- The experiences with pre-treatment by the use of fine-mesh sieves in cold climates are good.
- Chemical coagulation has several advantages over biological processes for secondary treatment in cold climates.
- Combined biological/chemical treatment by the use of MBBR directly followed by coagulation/separation could be advantages.

**Charalampos Skoulikaris** presented integrated quantitative assessment of climate change impacts on Mediterranean coastal water resources and socio-economic vulnerability mapping. In spite of the projected decrease of the river runoff, the lack of irrigation water is significant threat for the river's delta only for specific scenarios. This is mainly due to the two large reservoirs of the hydropower dams that are located upstream of the delta.

The utilized RCMs play an important role to the research outputs. It was shown that the future discharges could vary up to 117.20% and up to 97.78% for the RCP8.5 and RCP4.5 respectively.



Model results and observations show rather low SSI values (<40 cm), supporting the low presence of SSH extremes in the study area due to meteorological forcing.

The proposed research intends to offer solutions in designing a problem-solving platform that integrates and utilizes model datasets, to monitor and analyse environmental states and dynamics.

At the end of the webinar Zakhar Maletskyi made final remarks.

The video material is available at <https://youtu.be/mtLSOAlSPmg> while the presentations can be downloaded from [www.swarm.ni.ac.rs](http://www.swarm.ni.ac.rs).

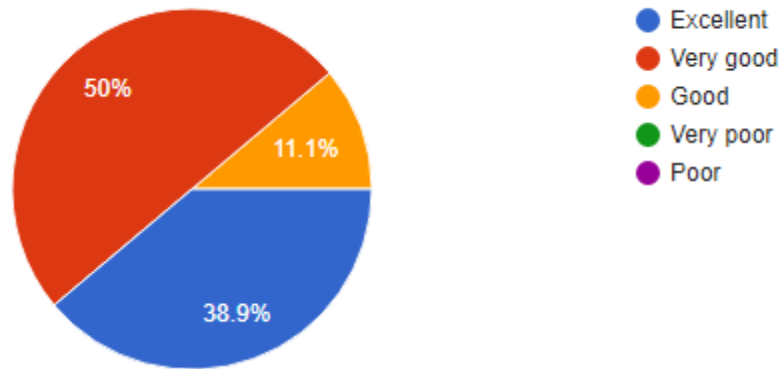
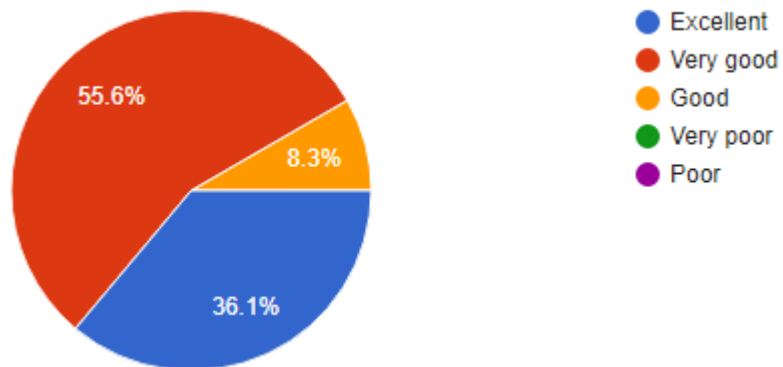
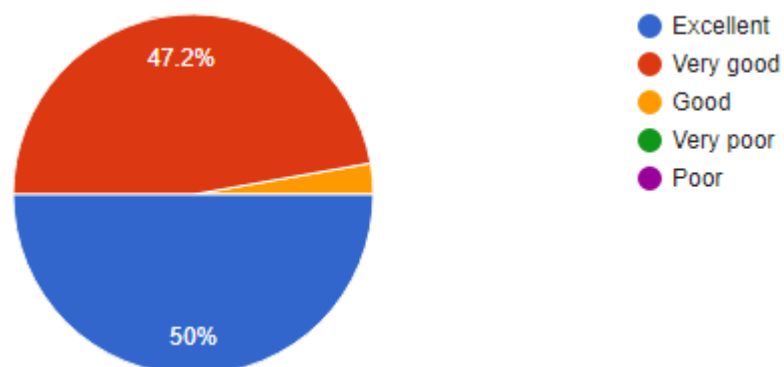
### 3. Webinar evaluation

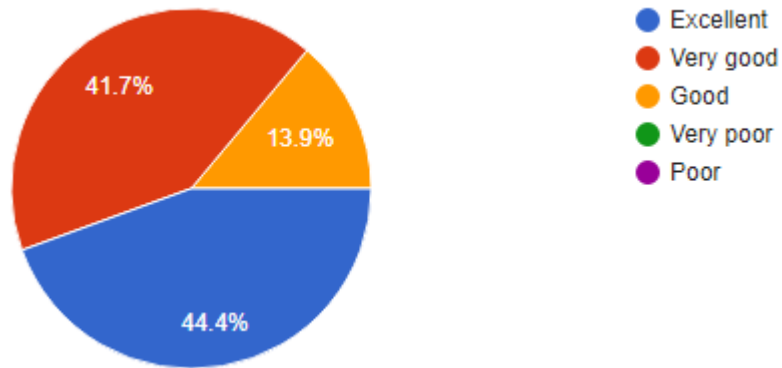
The webinar evaluation form had the following questions:

- Content of the agenda,
- Quality of presentations,
- Logistic preparation and organization of event,
- Duration and timetable of the event.

In total 36 responses were received. The general conclusion is that the webinar had an excellent logistic and that the quality of presented material was very good. Some opinions (comments):

- На будущее больше докладов
- Very informative for us as faculty.
- I learnt much more things on WWT and hope to join in future webinars too. Thank you.
- It is 3am in our time Canada, just fine work. At min night and feeling sleepy. Thank you!
- Nature began to react events with the coronavirus pandemic, more than half of the population on self -isolation or quarantine. Many enterprises have stopped, and pressure on water pollution is decreasing. If this continues, is there any use for preserving water resources?
- Well organized and great to be part of this
- Thank you! It was a pleasure to hear new experiences and challenges regarding water resources management from north to south. Best regards from Sarajevo.
- Satisfied by the overall quality of the event.
- It was great, big thanks from Kyrgyzstan

**Content of the agenda**

**Quality of presentations**

**Logistic preparation and organization of event**


**Duration and timetable of the event**

## ANNEX I – Webinar agenda

**Webinar****Frontiers in Water Resources Management****Tuesday, 5th May 2020****9:00 Greetings and Welcome****Milan Gođić**, University of Nis**Zakhar Maletskyi**, Norwegian University of Life Sciences**Contact & Info**

milan.godic@gaf.ni.ac.rs

[www.swarm.ni.ac.rs/news-events](http://www.swarm.ni.ac.rs/news-events)**9:05 Strengthening of master curricula in water resources management for the****Western Balkans HEIs and stakeholders (SWARM)****Milan Gođić**, University of Nis**Organised by****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**In the framework of****9:45 Analyse of water sector needs in the Western Balkans****Milan Gođić**, University of Nis**10:00 Water Resource Management in Cold Climate****Harsha Ratnaweera**, Norwegian University of Life Sciences*This project has been funded with support from the European Commission.**This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.***10:25 Integrated Quantitative Assessment of Climate Change Impacts on Mediterranean Coastal Water Resources and Socio-Economic Vulnerability Mapping****Charalampos Skoulikaris**, Aristotle University of Thessaloniki**10:45 Final Remarks****Zakhar Maletskyi**, Norwegian University of Life Sciences

## ANNEX II – Attendance list

Name	Country
Zakhar Maletskyi	Norway
Milan Gocic	Serbia
Emina Hadzic	Bosnia and Herzegovina
Skoulikaris Charalampos	Greece
Michael Tritthart	Austria
Harsha Ratnaweera	Norway
Naida Ademovic	Bosnia and Herzegovina
Ivana Sušanj Čule	Croatia
Pujitha DISSANAYAKE	Sri Lanka
Soukaina Mourchid	Germany
Bakhtiar Kerimbaev	Russian Federation
Ievgenii Gerasimov	Ukraine
Amit Chavada	India
Tom Randa	Kenya
Vladimir Bulicanu	Moldova, Republic of
Eve Mbabazi	Uganda
Petar Filkov	Bulgaria
Hellen Izama	Uganda
Ljiljana Jevremovic	Serbia
Ammar Saric	Bosnia and Herzegovina
Андрей Громыко	Ukraine
Татьяна Солодовник	Ukraine
Ivana Ćipranić	Montenegro
SHIVANG RATHVA	India
Валерия Нигода	Ukraine
Maria Manuela Gerente	Portugal
Roman Smotraiev	Ukraine
Guillaume De Schepper	Belgium
Иванна Демчук	Ukraine
Lim CY	Malaysia
Palina Anisenka	Belarus
Elisabeth Hoff	Norway
Sudam Selakasamarasinghe	Sri Lanka
Supun Meegahakumbura	Sri Lanka
Ecaterina Mihalcean	Moldova, Republic of
Ulukbek Esengulov	Kyrgyzstan
Bojana Horvat	Croatia
Rakesh Kumar Sinha	India
Ronald Semyalo	Uganda
Md. Rahman	Bangladesh
Sundara Moorthy	India
Elsa Ouma	Kenya
Bhanu Sharma	India
Slavisa Trajkovic	Serbia
Ravindra Kale	India

Keval Jariwala	India
Elizabeth Philip	Canada
Martin Oldenburg	Germany
Нилуфар Садикова	Tajikistan
Lakshitha Weerasinghe	Sri Lanka
Francis Mutua	Kenya
Dibbya Mandol	Bangladesh
Oleksii Kozhuhko	Ukraine
Benard Isaiah	Kenya
Olena Hruzdieva	Ukraine
Suvada Šuvalija	Bosnia and Herzegovina
RITESH KUMAR JAISWAL	India
Malik Zhekeyev	Kazakhstan
Farhan Aziz	Saudi Arabia
Olga Sanginova	Ukraine
Vitalii Viazovyk	Ukraine
Ahi Mantouza	Greece
Maftuna Busygina	Ukraine
Slobodan Kolakovic	Serbia
Goran Sekulić	Montenegro
Анастасия Чернова	Ukraine
S.B. Weerakoon	Sri Lanka
Maria Mavrova	Bulgaria
Iryna Kosogina	Ukraine
Davin Sang	France
Santosh Subhash Palmate	India
Md Sajib Hossain	Bangladesh
Rocio Fernandez	United Kingdom
Mariya Lyaguta	Kazakhstan
Myroslava Koval	Ukraine
Shambel Muluneh	Canada
Rodrigo Proença de Oliveira	Portugal
Rohit Rattan	India
Oleg Pinchuk	Ukraine
Panduka Neluwala	Sri Lanka