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Workshop on the sustainability of the SWARM results: conclusions

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Final conference of project:
Strengthening of master curricula in water resources management for the Western
Balkans HEIs and stakeholders
Podgorica, 01 April 2022

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.



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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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Introduction

The presentation focuses on the Workshop on the sustainability of the SWARM results of the Erasmus+ Capacity Building in the Field of Higher Education project held on the 20th and 21st December 2021 at the Aristotle University of Thessaloniki, Greece.

The workshop was organized as a hybrid event (in-person and online using Zoom platform) technically supported by the Aristotle University of Thessaloniki (AUTH).

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Introduction



Strengthening of master
management for the West

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Workshop objectives

During the Workshop various discussion on how to achieve sustainability of the SWARM outputs after the end of the project were conducted.

The following topics were discussed:

- dissemination and sustainability,
- experiences and good practices in the implementation of similar projects in programme partner countries,
- feedback from the organized schools,
- impact of the SWARM results on different levels.

In total, 25 participants attended (16 in-person and 9 online) from all partner institutions.

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Topic: Dissemination

Dissemination is the process of making the results and deliverables of a project available to the stakeholders and to the wider audience. It is crucial for the success of the project and for the sustainability of outputs in the long term.

- Where **dissemination** tends to focus on activities to inform, educate, and engage, **sustainability** tends to focus on models and scenarios.
- The outcomes may relate to what people will be able to do better, faster, or more efficiently because of what the project has achieved.
- The project outputs may include tools, models, guidelines, methods, case studies, or recommendations that can be followed by the various stakeholders.

Topic: experiences and good practices

- **Nevenka Ožanić** presented experiences and good practices in the implementation of EU infrastructure project RISK at the University of Rijeka, Faculty of Civil Engineering. In order to increase the level of research activities the University created the environment for increasing both research and learning outcomes with an emphasis on collaboration and development of multidisciplinary scientific fields.
- **Michael Tritthart** presented experiences and good practices from Austria such as sustainability in
 - An international capacity-building project: UNIDO_CB
 - A national climate change research project: PURIFY
 - An EU-funded research and infrastructure project: SEDDON II

Topic: experiences and good practices

- **Petar Filkov** presented experiences and good practices from Bulgaria. He highlighted that “*sustainability of SWARM results*” should mean sustainability of master curricula. It is better to speak about *sustainability of master programmes*, related to *water resources management (WRM)*, not about their curricula, because curricula are changed over time to take into account the changes in science, practice, etc.
- **Maria Manuela Portela** and **Luis Angel Espinosa** presented the continuity and future of joint scientific projects: the Portuguese experience from water resources-related projects.
 - **A joint scientific water-related project** should employ scientists and academics to carry out research in order to provide independent scientific advice and support to water resources policy.
 - It is an active player in the global arena, involved in strategic international cooperation gathering partners worldwide, working on a diverse range of scientific fields addressing water-related issues.
 - In the increasingly competitive and globalising world of higher education, the future of universities relies on how successfully they interact with their environment.

Topic: experiences and good practices

- **Skoulikaris Charalampos** presented experiences and good practices from Greece.
 - Until the end of the 20th century **Water Resources Management** was, almost exclusively, oriented to hydrotechnical works focusing on the technical reliability and economic efficiency of projects.
 - Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
 - At the same period, **integrated water resources management (IWRM)** established a multidisciplinary and multisectoral approach on setting the management of waters as part of a system rather than an autonomous process.
- **Zakhar Maletskyi** highlighted the need for exit planning including mapping of key resources, understanding drivers and needs, foundation for continuation, structure relevant to the project, cooperation, openness and dialogue. Grants are almost always **fixed term arrangements** meaning the grant recipient needs to suitably prepare to either end funding or alter the service delivery.

Sustainability of SWARM

- A dedicated session was organized to work on sustainability of achieved SWARM results and collaboration with industry (moderated by **Zakhar Maletskyi**). Five group of questions have been asked:
 - What should we **START** doing?
 - What should we **KEEP** doing?
 - What should we do **MORE** of?
 - What Should we **STOP** doing?
 - What should we do **LESS** of?

Sustainability of SWARM

- Through the use of an interactive platform the following conclusions were extracted:
 - Organization of summer schools on regular basis
 - To identify synergies in research interests among all partners
 - Development of new LLL courses for professionals
 - A new project idea relevant to the funding landscape
 - New webinars for WB stakeholders
 - Using the equipment for research projects
 - Keep cooperation between HEI-WB, widely
 - Continual improve syllabi regarding IWRM
 - Motivate ourselves for self-development
 - Explore ways of broader collaboration
 - Cooperation with practice
 - Use of the equipment by students
 - Organization of symposiums
 - Dissemination through conferences, seminars, publications
 - Develop training material for using new equipment
 - Delegation of tasks should be more equally distributed
 - To valorize the scientific capability of the partners and not only their geographical localization
 - Promotion of developed/modernized master study programmes
 - Stop working online and work in-person, end COVID
 - Less reports and more scientific contributions,
 - Adding new courses.

Sustainability of SWARM

- Example of the online tool:

What should we START doing?	What should we STOP doing?
Organization of summer schools on regular basis - Maja & UNS coord., Milan, Emina <input checked="" type="checkbox"/>	Stop working online and work in-person, end covid <input checked="" type="checkbox"/>
To identify synergies in research interests among all partners - Zakhar - coord., Maja, Jelena <input checked="" type="checkbox"/>	
Development of new LLL courses for professionals <input checked="" type="checkbox"/>	
A new project idea relevant to the funding landscape <input checked="" type="checkbox"/>	
New webinars for WB stakeholders <input checked="" type="checkbox"/>	
Using the equipment for research projects <input checked="" type="checkbox"/>	
What should we KEEP doing?	What should we do MORE of?
Keep cooperation between HEI-WB, widely <input checked="" type="checkbox"/>	Dissemination through conference, seminars, publications - UnM <input checked="" type="checkbox"/>
Continual improve syllabi regarding WBM <input checked="" type="checkbox"/>	Develop training material for using new equipment <input checked="" type="checkbox"/>
Motivate ourselves for self-development <input checked="" type="checkbox"/>	Delegation of tasks should be more equally distributed <input checked="" type="checkbox"/>
Explore ways for broader collaboration <input checked="" type="checkbox"/>	To valorize the scientific capability of the partners and not only their geographical localization <input type="checkbox"/>
Cooperation with practice <input checked="" type="checkbox"/>	Promotion of developed/modernized master study programmes <input checked="" type="checkbox"/>
Use the equipment by students <input checked="" type="checkbox"/>	
Organization of the symposium <input type="checkbox"/>	
What should we do LESS of?	
Less reports and more scientific contributions <input checked="" type="checkbox"/>	
Adding new courses <input type="checkbox"/>	

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Feedback from the organized schools

- **Barbara Karleuša** presented results from winter school at UNIRIFCE. Students do research work to describe the structure of water management in their country, including: legal frame, legislation, organization, administrative structure, water management financing, international cooperation. During the second week, students presented the water supply system (WSS) of the city in which they study.
- **Daniel Wildt** presented results from the winter school at BOKU and highlighted the need of this type of activities. Course summary consists of: a) Introduction to unsteady problems in hydro- dynamics, b) Ordinary differential equations, c) Partial differential equations – Development of a flood wave, d) Theory on computer-based river modelling, e) 1D models, error estimation, f) Unsteady pipe flow (hydraulic surge), g) Introduction to OpenFOAM.
- **Petar Filkov** presented results from winter school at UACEG. The school was organized using MS Teams. He showed the winter school plan and evaluation results.

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Feedback from the organized schools

- **Charalampos Skoulikaris** presented results from winter school at AUTH. Principal aim was the introduction to students of the basic concepts of a) Sustainable and integrated water resources management, b) Hydraulics (open channels, river, water supply networks etc), c) Hydrology and use of hydrological models and tools (e.g. GIS).
The Advantages and disadvantages of the procedure were: a) Familiarization of students with ITCs, b) Lack of inter communication, c) Small number of students, d) No cameras/microphones, f) Difficulties in demonstrating programs and tools virtually.
- **Milan Gocić** presented sustainability of WB developed LLL courses.
 - Lifelong learning is a form of self-initiated education that is focused on personal development.
 - Lifelong learning is the voluntary act of learning throughout life. Individuals and communities need to acquire skills that are relevant to their lives, their needs and their work. Learning benefits should be ensured for individuals, communities, employers and society.

Impact of the SWARM results

- **Emina Hadžić** presented impact of the SWARM results on the HEIs in Bosnia and Herzegovina.
UNMO and UNSA contribution through SWARM project is:
 - Contribution to the review of the current situation in the water sector of B&H, especially in the section of integrated water management.
 - Contribution to the improvement of curricula of existing subjects in the field of water resources and environmental engineering.
 - Participation in the transfer of knowledge to the public sector as well as citizens in order to raise awareness of the importance of effective management of water resources.
- Sustainability of results in B&H can be summarized through:
- ❖ **Two improved master programmes in WRM** at the WB partner HEIs
 - ❖ **A new training programme**, with training materials for water resources sector developed and conducted.
 - ❖ **Retrained teaching staff** with up-to-date knowledge in WRM
 - ❖ **Advanced teaching and learning process introduced.**
 - ❖ **Introduced new laboratory equipment, library units and software** necessary for the continuation of the master programmes.
 - ❖ Prepared **Training Manual on Water Resources Management**, which will be useful for stakeholders and others.

Impact of the SWARM results

- **Jelena Djokić** presented impact of the SWARM results on the HEIs in Kosovo*. The following was expected from SWARM:
 - ❖ Modernized curricula on Bachelor and Master level,
 - ❖ LLL courses provided for the professionals in the water sector,
 - ❖ UPKM equipped for better performance.
- **Maja Petrović** presented the impact of the SWARM results on the HEIs in Serbia. She highlighted the necessity of education of experts for water resources management in line with the national and EU policies. The list of specific national issues in WRM contains of
 - Low economic price for drinking water;
 - High water losses in water supply networks;
 - Water protection - the weakest part of the water management system;
 - Maintenance of the existing systems for flood protection is minimal;
 - Coordination and cooperation in the planning and implementation of programs is unsatisfactory;
 - New, functional and sustainable concept of water management based on groundwater, and artificial reservoirs is needed.

Impact of the SWARM results

- **Biljana Šćepanović** presented impact of the SWARM results on the HEIs in Montenegro. The main motivation of the Faculty of Civil Engineering UoM is to a) **develop new and improve the existing education** in the field of water management, b) **raise technical capacity** and c) accomplish creation of **more efficient systems** in the field of **water resources management**.
- The role of the UoM (FCE) in SWARM is
- UoM(FCE) modernized curricula of existing master study programmes Civil Engineering – Infrastructures – Water Engineering.
 - UoM(FCE) set up a laboratory for the teaching purposes at the master's program Water Engineering.
 - UoM(FCE) teaching staff took EU organized trainings
 - Students took part in the winter school for acquainting new practices and skills.
- Academic staff at UoM have a direct benefit through:
- development of courses, lecturing, trainings, study visits and workshops, collaboration with other members in the Consortium, utilization of the equipment, development of new competences, involvement in dissemination actions, and other.

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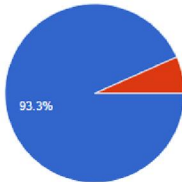
Impact of the SWARM results

- It is expected the high number of **beneficiaries** of project results **outside the HEI**:
 - LLL promotional course for non-academic sector,
 - new learning material development,
 - professional collaboration with the public companies, and other.
- Impact at institutional level:
 - Institution's visibility will be increased,
 - Institution's quality standards and goals are raising,
 - The competences of teaching staff are raising,
 - Many new contacts at individual and institutional scale have been established.
- **Olivera Gavrilović** presented the impact of the SWARM results on the water-related sector. She highlighted the importance of participation of non-academic institutions in creation of study programmes together with the HEIs.

Workshop evaluation

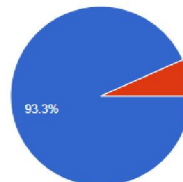
Relevance of the topic

15 responses



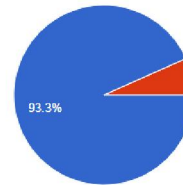
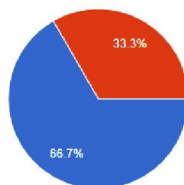
Rating of presented materials

15 responses



Usefulness of the acquired knowledge

15 responses



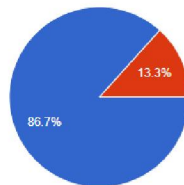
- Excellent
- Very good
- Good
- Poor
- Very poor

Figure 3 Rating of presented materials

Workshop evaluation

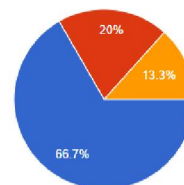
Rating organization

15 responses



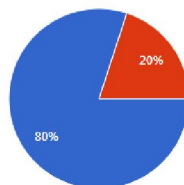
Rating interactivity in symposium

15 responses



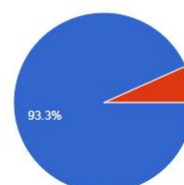
Rating of working conditions

15 responses



Overall impression

15 responses



- Excellent
- Very good
- Good
- Poor
- Very poor



Thank you for your attention!