



## **Final report on external evaluation of the SWARM project “Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders”**

**ERASMUS 597888-EPP-1-2018-1-RS-EPPKA2-CBHE-JP**

Education of experts for water resources management in the Western Balkans (WB) in line with the national and EU policies is the overall goal of this project, aiming at the realization of 7 workpackages with the following objectives: a) improving the level of competencies and skills in high education institutions (HEI)s, b) developing new and innovative master programs in the field of water resources management (WRM) by October 2021 c) designing and implementing seven new and up-to-date laboratories in WB partner HEIs in cooperation with EU project partners by November 2019, d) developing and implementing long-life learning (LLL) courses for the water sector in line with EU Water Framework Directive by January 2021.

### **Relevance**

The project activities specified in the project proposal *correspond* to the *project objectives* and addressing *real problems and needs*. They were realized delivering outcomes relevant to the objectives. The *target beneficiaries*, as defined within the project proposal have participated in planned activities and organized events (seminars, training, etc.), and other measures were taken to support the project realization.

Some activities are still not reported as completed, including winter/simmer schools and symposium for promoting WRM in WB, which is probably delayed due to the Covid pandemic. Several activities are in progress (2.4, 4.1, 4.3, 5.2, 5.3, 5.4, 6.2, 6.3, 6.4, 6.5, 6.6, 7.4, 7.5, and 7.6) according to the project plan and I strongly believe they will result in the expected deliveries.

Relevance can also be confirmed by a relatively high number of participants, quality of presentations, and evaluation reports of these events.

### **Efficiency**

Transformation of the project inputs to outputs is **confirmed** by well-documented reports for realized project activities and delivered outputs. No severe deviations have been noticed in project executions and project plan, besides small delays due to the Covid pandemic, which is expected.

### **Effectivity**

All delivered main outputs **match** the wider and specific objectives defined in the project proposal **achieving the main project goal** by including a high number of participants in the organized events.

### **Impact**

My overall impression about the project is that it **fulfilled the expectations with a great impact**, although a relatively large number of participants was involved in project realization.

All planned outcomes are being delivered or are in progress according to the initial project plan without deviations. Planned comparison of the situation before the project and after project realization can confirm the quality assessment of project deliveries and their impact besides the quantity measures specified in the management reports and delivery results.

## **Sustainability**

As the curricula accreditation process is finalized and all training material delivered and courses initiated, I believe that the project consortium will continue to deliver courses with the support of the local and national government bodies, industry, and the University management ensuring financial and social sustainability.

## **Analysis of the answers to recommendations from the previous report**

Most of the recommendations were detailly analyzed and appropriate corrective action was conducted. For some recommendations, a future activity was planned to be realized (there is not sufficient evidence of realization). A small number of actions were clarified to initiate a corrective activity.

## **Recommendations for which an action was realized and deliveries were updated**

The following list contains recommendations, for which the **deliveries were updated** matching the requirements:

- Although a comprehensive analysis of the state-of-the-art is provided in WP.1 only the needed equipment was reported to upgrade the HEIs in the project context. The report does not contain a summary of missing skills and knowledge topics that are essential for the development of curricula. Note that the fifth activity (WP.1.5) includes the presentation of challenges and barriers, and a relevant summary will increase the quality of the WP 1 results.
- The competencies in WP.2 should follow the summary of the skills and knowledge requirements identified in WP.1. Therefore, these requirements are missing, although there is a comprehensive list of generic and specific competencies expected within the new curricula.
- The WP.2.1 report needs a clear distinction of WRM competencies from competencies for other sciences or engineering topics.
- The potential links in the report of WP.2.1 are obsolete since it is presented in details for each University in the report of WP.2.2.
- No need to present the links between the competencies and subjects in WP.2.3 since they were elaborated in WP.2.2.
- The developed training (learning) material should be mapped to skills, knowledge, and competencies specified in the LLL program.
- Elaboration of selecting the participants in the project activities needs to be extended with the explanation of why those participants have been included in the events.
- The project outputs need to be disseminated to non-academic persons and business partners, including those that were contacted for analysis of the needs within WP.2.
- I recommend adding knowledge and skills of modeling and simulation within WRM.
- I would encourage the project coordinator to explain the strategy or methodology of how the target group was selected for participation in the events, training, or mentoring, giving details if all relevant target audience is communicated.

## **Recommendations for which an action is planned to be realized**

List of recommendations, for which **future activities** are planned to match the requirements:

- In addition, I recommend the Universities plan to add subjects on resource management of other environmental resources, including renewable energy resources or waste management within the scope of the studies as electives or branches of currently defined studies. Also, I recommend adding knowledge and skills of modeling and simulation within WRM.
- Some of the generic competencies are neither covered by mandatory nor by elective subjects, and they need to be specified, or relevant clarification where these competencies will be achieved.
- Although a comprehensive strategy for implementation of course innovation is developed and specified in the report WP.2.3, still the report targets details on the developed curricula and does not present what is the innovation achieved. The document should more clearly specify what is new (method of achieving competencies, the program itself) and what is the benefit of the invention to justify the innovation, instead of presenting just the study program details. This needs to be updated, also, with a possible list of social, technology development, environment or other benefits.
- There is no report of how many handbooks were printed or distributed, and/or promoted to relevant staff working in governmental institutions for WRM.
- Although not directly planned, I strongly recommend organizing LLL courses within developed curricula and training material.
- Within the WP3 there is no specific action that plans realization of LLL courses in WB, although the state-of-the-art in EU is well documented, needs for WB are analyzed and training material developed. I would encourage additional activities outside the project scope to organize such courses. This would be a great add-on value to the project to cover the third specific objective of the project.
- I recommend raising the awareness level at a wider community, including other WB countries, by inviting them to dissemination or training events. This will improve the regional cooperation and overall visibility of the project results and outcomes.
- I recommend the Universities to plan adding subjects on resource management of other environmental resources, including renewable energy resources or waste management within the scope of the studies as electives or branches of currently defined studies.
- I strongly encourage the last report to include a comparison of the situation before the project start and the situation after finishing the project, such as the number of experts in WRM, number of job positions, number of held LLL courses, and improvement of competencies of existing employees in WRM. This would give sufficient answers on the project impact and quality of project results.
- I recommend that the event organizer and project coordinators also report on the selection criteria for all participants on realized activities, to ensure that the main target audience is communicated.
- I would suggest more efforts to be set in enabling work positions for prospective students, as this will be a motivator for students to study the proposed master curricula. This can be achieved by initiating a development strategy on a national or local level that will organize administration or institutional support of WRM.
- Four WB countries are included in the project. I strongly recommend including also North Macedonia and Albania, at least in the dissemination phase.

## **Recommendations with clarified requirements**

List of recommendations with **more elaborated requirements**:

- The strategy for identification of the current state should be documented and explained why only the selected criteria are analyzed for a specific topic. For example, policy and strategic planning are not sufficient, I recommend including action plans and monitoring of their realization in the report since the annexes reference them.

As stated in the introduction the reports related to Water Resource Management in WB have been developed based on guidelines by UNEP (2012). Thus the criteria were also selected according to these guidelines. There is an extensive summary and synthesis in the report on WP 1.1 (section 9: Issues in Water Resource Management in WB). This section also includes recommendations and ideas on how to implement and monitor improvements related to issues in Water Resources Management in WB.

- **Please update with action plans and monitoring of their realization**

- Details on study programs should be enlisted as an annex to the report. Also, a description of a study subject needs to be accompanied by recommended and optional literature and the methods of how the course will be delivered (weekly hours of lectures, tutorials, practical assignments, etc.)

We appreciate your recommendation (NB: it was part of WP 2.3). We believe that the study programs should be described in the main text and not as an annex. In our view, a detailed description of the course (explanations, literature, etc.) should not be part of the SWARM deliverables.

- **These recommendations will only increase the quality of deliveries and I recommend realizing this, as this was also part of the accreditation process.**
- This project should also raise awareness about skills and competencies that will be achieved by the prospective master students and influence governmental institutions about competent staff for future WRM on national and local levels. These governmental institutions and relevant business sectors may support the realization of new curricula by introducing the possibility of scholarships and internships or the provision of lectures and courses for relevant staff.

We agree that in the context of the developed WRM programs, lifelong learning courses addressed to existing employees in WRM, government institutions and businesses could create the conditions for better understanding, support, and sustainability in the teaching WRM. In the SWARM project, LLL courses are prepared.

Invitation of persons from some governmental institutions at the roundtables or similar dissemination events has been planned. In the future, the organization of lectures in water companies and visits, for example, hydropower stations, water supply companies will be planned.

- **In addition to planned actions, realize one-to-one meetings with government officials and initiate activities with support to sustainability of project results**
- Are the benefits of the project and exploitation of the results going to be extended also after the project lifetime/financing period?

Accredited curricula will be supported by the national ministries of education. Training material will be freely available. LLL courses will be a part of LLL centers at WB universities or corporate centers, where it is possible.

- **Provide evidence of support of the national ministry of education**

- Financial sustainability needs to be supported by action plans or decisions in addition to the adopted University strategic documents to ensure that the University will continue to finance and organize the new master curricula and organize training after project termination.

Revised the Project management and reporting guide (<http://www.swarm.ni.ac.rs/activities?id=9>) included the links between previously adopted documents and environmental science and WRM field.

- **Provide evidence of support by attaching documents – the document on your website reflects management (including risk management) and does not reflect financial sustainability**
- The register of companies for WRM in WB countries is developed, but no competencies and responsibilities are associated with each company.
- **Answers not provided**

### **Overall conclusion**

The planned and realized project activities correspond to the project objectives and deliveries have outstanding quality. A small number of activities are still in progress according to the project plan and corrective measures from provided recommendations, giving evidence of excellent quality management. This report contains several small remarks that I strongly believe will be finished in the last two months of the project duration.

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Marjan Gusev  
