



Co-funded by
the European Union

EcoMinds

2024-1-HR01-KA220-HED-000245495

Quality Management Plan

November 2024



2024-1-HR01-KA220-HED-000245495

Eco Minds

Enhancing Environmental Data Collection through Machine Learning and Database Systems

Work Package:	WP1 - Project Management		
Product/Deliverable:	Quality Management Plan		

Version:	1	Date:	November, 2024
Type:	Plan		
Distribution:	Project Partners		
Responsible Partner:	LUISS Guido Carli		
Author:	All Partners		
Contributors:	All Partners		
Approved by:	Quality Assurance Team	Date:	20/11/2024



Identification Sheet

Project Code	2024-1-HR01-KA220-HED-000245495
Project Acronym	Eco Minds
Project Full Title	Enhancing Environmental Data Collection through Machine Learning and Database Systems

Keywords	Quality, project, management
Abstract	<p>This Quality Management Plan describes the quality management scope and objectives, methodology, and tools for Project Eco Minds and aims to assist in project management. Quality indicators are defined, and monitoring and evaluation tools are described for Quality Management on two levels: process and project deliverables. The below does not replace any tasks or responsibilities described in the original and approved project application.</p>
Disclaimer	<p>The European Commission has funded this project. This publication reflects the author's views only, and the Commission cannot be held responsible for any use that may be made of the information contained therein.</p>



Contents

1. INTRODUCTION	5
1.1. Scope.....	5
1.2. Objectives and general approach.....	5
2. QUALITY PLANNING AND ASSURANCE.....	6
2.1. The project goal, objectives, and expected results	6
2.2. Quantitative and qualitative indicators and methods of evaluation	8
2.2.1. Work Package 1: Project Management	8
2.2.2. Work Package 2: Transnational Project Team Meetings	9
2.2.3. Work Package 3: Training and Exchange of Expertise for Educational Staff.....	10
2.2.4. Work Package 4: Development and Piloting of 2 Bachelor's Level Elective Courses and a Digital Seminar	11
2.2.5. Work Package 5: Multiplier Events	12
2.3. Responsibilities.....	13
2.3.1. Work Package 1: Project Management	13
2.3.2. Work Package 2: Transnational Project Team Meetings	13
2.3.3. Work Package 3: Training and Exchange of Expertise for Educational Staff.....	14
2.3.4. Work Package 4: Development and Piloting of 2 Bachelor's Level Elective Courses and a Digital Seminar	15
2.3.5. Work Package 5: Multiplier Events	15
2.4. Evaluation tools	16



1. INTRODUCTION

According to the Survival Kit for European Project Management¹, evaluation should be seen as a process that permeates project management. This process should be driven by questioning and by the desire for a high-quality project. Quality is partly defined through the project's impact and extends to relevance, efficiency, effectiveness and long-term sustainability.

Measuring the impact and quality of projects takes work. It is much more straightforward to assess if the outputs (publications, courses, websites) have been produced and produced on time. Evaluation is a process that must be completed in the final stages of the project.

1.1. Scope

This Quality Management Plan (**Plan**) should be applied to the implementation process of the Eco Minds project, funded by Erasmus + / Key Action 2 - KA220-HED (Cooperation partnerships in higher education).

1.2. Objectives and general approach

The main goal of the Plan is to establish a support mechanism for project management to ensure smooth cooperation and high-quality project outputs.

The objectives of Quality Management in Eco Minds are:

- Raising awareness about quality within the project and support of decision-making processes
- Provision of feedback to the coordinator and the project partners
- Contribution to clear user orientation in the development of project outputs and positive public relations
- Outlining improvement potentials concerning processes and results

The Plan is developed aiming to facilitate Quality Management on two levels:

- Process – smooth and timely implementation of the project
- Project Deliverables – quality training program, support materials, etc., based on the needs of the target groups and specifications described in the project application and Grant Agreement

The Plan is based on the basic cycle/ processes of quality management, which include Quality Planning,

¹ Bienzle, H. (ed.): A Survival Kit for European Project Management. Advice for Coordinators of Centralised Socrates Projects; 3rd revised edition; 2004.



Quality Assurance and Quality Control. Quality planning defines the project objectives and indicators to be evaluated, monitors and verifies success, and distributes quality management tasks among partners. Quality should be assured with the help of the tools set in quality planning, predicting and verifying goals and the need for corrective actions. Quality Control includes identifying project risk factors and uncovering, analyzing and correcting problems if they occur.

A Quality Assurance Team has been established consisting of the following members: Quality Assurance Manager (LUISS) and representatives from the Oracle Academy and Polytechnic of Šibenik. A Quality Assurance Team will oversee the progress, quality, and achievement of project activities. The role of the Quality Assurance Team will be to establish planned and systematic quality assurance mechanisms based on self-assessment and peer review. It will oversee the progress, quality and achievement of project activities. The Quality Assurance Team will meet once every three months to monitor progress and carry out quality assessments. The LUISS Guido Carli will be in charge of the team.

2. QUALITY PLANNING AND ASSURANCE

2.1. The project goal, objectives, and expected results

The overarching goal of the Eco Minds project is to contribute to the digital and green transformations of higher education through cross-sectoral transnational cooperation and IT curriculum modernization. The project aims to develop the digital and green competencies of higher education educators, build undergraduate students' digital and green skills to increase their employability in partnership with the business sector, and make higher education more accessible to diverse groups of learners.

Expected results include improved capacity of partners, encompassing five higher education institutions, one secondary vocational school, one IT employer, and one NGO, to work transnationally and across sectors. This collaborative effort is a testament to the inclusive nature of the project. Additionally, the project aims to enhance the digital and green skills of 15 educators. The skill development of students and pupils will also be targeted, with 90 undergraduate students, 10 vocational school pupils, and 2 NEETs (Not in Education, Employment, or Training) expected to gain improved digital skills in machine learning and database design, as well as green competencies.

The project seeks to increase stakeholder awareness of environmental trends and challenges at the local level. It will involve the creation and piloting of two undergraduate-level elective courses and a digital seminar on machine learning, database design, and environmental data analysis. Training and exchange of expertise will be conducted for university professors, lecturers, postgraduate teaching assistants, and vocational secondary school teachers. Transnational project team meetings will be organized to facilitate coordination and collaboration among project partners. Furthermore, multiplier events will be conducted to



disseminate project results and engage a broader audience.

The project aims to positively impact employment by increasing the employability of students and pupils through the acquisition of relevant digital and green skills. This long-term investment in the future workforce is a source of reassurance and confidence. It also seeks to enhance cross-sectoral cooperation between educational institutions, the business sector, and environmental organizations. By achieving these objectives and results, the project aspires to create a sustainable impact on higher education institutions, their educators, and students, contributing to the broader goals of digital transformation and environmental sustainability.

In order to set a Quality Management Plan, it is essential to establish what the project aims to achieve and what it should produce for the target group. Project progress will be measured with the help of project management software and other team collaboration tools. These will be agreed on and discussed before the beginning of project implementation, and project team members will be provided with training on how to use them during the kick-off meeting. The Project Manager will be in charge of following the project's progress and the fulfillment of indicators.

The Quality Assurance Team will rely on the following quantitative and qualitative indicators:

Quantitative:

- number of professors, lecturers, postgraduate teaching assistants and teachers participating in the training and exchange of expertise (the expected number is 15)
- number of university students enrolled in the elective courses on machine learning and artificial intelligence (the expected number is 90)
- number of learners who complete the digital seminar on machine learning (the expected number is 12)
- number of developed learning and teaching materials (the expected number is 2)
- number of developed courses and seminars (the expected number is 3)
- number of published academic articles and case studies (the expected number is 2)
- number of visits to the project's website
- number of people attending multiplier events & dissemination activities

Qualitative:

- peer reviews of all educational outputs
- evaluation of activities by project team members



- evaluation of activities by target groups
- requests for project replication
- media coverage

2.2. Quantitative and qualitative indicators and methods of evaluation

In addition to the immediate project results related to the fulfillment of qualitative and quantitative indicators, project objectives expand above the direct short-term impact on target groups. The project aims to increase target groups' applied knowledge and boost cooperation across partner institutions. It also aspires to bring about social change in local communities by providing student-centered, modular and open higher education courses aligned with societal and business needs. The evaluation of the project's results thus requires a more qualitative and analytical approach.

The Quality Assurance Team members' research and academic experience make them qualified to carry out such evaluations through the use of the following quality control activities: research of good practices, peer review of all intellectual outputs, tracking of the achievement of quantitative indicators, carrying out surveys and interviews with target groups and project team members, providing incentives to target groups for quality performance and active participation, and integrating the results of all quality control activities.

The following indicators and evaluation methods will help ensure that each work package is effectively monitored and assessed, contributing to the overall success of the project. By systematically tracking both quantitative and qualitative indicators and employing robust evaluation methods, we can maintain high standards of project management, facilitate productive transnational meetings, ensure adequate training and expertise exchange, develop and pilot innovative educational courses, and conduct impactful multiplier events.

2.2.1. Work Package 1: Project Management

Quantitative Indicators:

- Number of project reports prepared.
- Number of financial reports completed.
- Number of administrative meetings held.
- Number of issues resolved within the project timeline.
- Number of stakeholder feedback sessions conducted.



Qualitative Indicators:

- Feedback from project stakeholders on management efficiency.
- Evaluation of project management processes by the project team.
- Quality of project documentation and reporting.

Methods of Evaluation:

- Regular monitoring and tracking of deliverables and milestones.
- Stakeholder feedback surveys.
- Internal project team reviews and evaluations.
- Analysis of project documentation and reporting quality.

2.2.2. Work Package 2: Transnational Project Team Meetings

Quantitative Indicators:

- Number of physical transnational project team meetings that have taken place (the target value is 4)
- Number of online transnational project team meetings that have taken place (the target value is 5)
- Number of project team members who have taken part in the meetings (the target value is 12 + 2 for meetings when representatives of the associate partners are present),
- Number of associated partners who have participated overall in the meetings (the target value is 2),
- Number of prepared meeting minutes (the target value is 9)
- Number of prepared communication and dissemination plans (the target value is 2)
- Number of prepared strategies for stakeholder engagement and civic participation (the target value is 1)

Qualitative indicators

- The (positive) evaluations of the transnational project team meetings by members of the project team
- The (positive) quality assessment of the activity by the Quality Assurance Team
- Requests for further cooperation from members of the project team



Methods of Evaluation:

- Post-meeting surveys and feedback forms
- Review of meeting minutes and action items
- Quality Assurance Team assessments
- Tracking of follow-up actions and cooperation requests

2.2.3. Work Package 3: Training and Exchange of Expertise for Educational Staff

Quantitative Indicators:

- Number of planned and organized training (the target value is 1)
- Number of days of training (the target value is 5)
- Number of higher education professors, lecturers and postgraduate teaching assistants participating in the training and exchange of expertise (the target value is 14)
- Number of teachers working with vocational school pupils and NEET taking part in the training and exchange of expertise (the target value is 1)
- Number of associated partners from the business sector supporting the training and exchange of expertise through the provision of access to their digital tools, labor market insight and educational network (the target value is 1)
- Number of associated partners from the civic sector supporting the training and exchange of expertise through the provision of local environmental and sustainability insight (the target value is 1)
- Percentage of educators who evaluate positively the training and exchange of expertise (the target value is 80%)

Qualitative Indicators:

- The (positive) evaluation of the work package by project team members
- Project team members' interest in and participation in the follow-up consultations with their colleagues
- Educators' continued commitment to lifelong learning



Methods of Evaluation:

- Training evaluation forms and feedback surveys
- Follow-up consultations and engagement tracking
- Quality Assurance Team assessments
- Longitudinal tracking of educator engagement in lifelong learning activities

2.2.4. Work Package 4: Development and Piloting of 2 Bachelor's Level Elective Courses and a Digital Seminar

Quantitative Indicators:

- Number of developed undergraduate-level elective courses (the target value is 2)
- Number of developed and localized sets of learning and teaching materials (the target value is 2)
- Number of developed digital seminars for independent use (the target value is 1)
- Number of undergraduate-level students enrolled in the elective courses on machine learning and database design (the target value is 90)
- Number of secondary vocational IT school pupils who will independently complete the digital seminar on machine learning and green data analytics (the target value is 10)
- Number of NEETs who will complete the digital seminar on machine learning and green data analytics (the target value is 2)
- Percentage of undergraduate-level students who will complete the elective courses on machine learning and database design (the target value is 80%)
- Number of collaboratively written academic articles by the project team on the intersection of machine learning and environmental protection (the target value is 1)
- Number of prepared case studies by the project team on the use of data analytics for the sustainable management of aquatic ecosystems (the target value is 1)

Qualitative Indicators:

- The (positive) evaluation of the work package by project team members,
- The (positive) evaluation of the work package by students, pupils and NEETs,
- The (positive) evaluation of the work package by the three members of the Quality Assurance Team
- Peer reviews of activities and outputs



- The (positive) media coverage
- Interest in participation in the project by local communities
- Interest in participation in the project of institutions active in the area of environmental protection

Methods of Evaluation:

- Surveys and feedback forms from students, pupils, and NEETs
- Peer review of academic articles and case studies
- Quality Assurance Team assessments
- Media analysis for coverage and public interest
- Tracking community and institutional engagement and participation

2.2.5. Work Package 5: Multiplier Events

Quantitative Indicators:

- Number of reached secondary and secondary vocational IT school pupils (the target value is 120, or 20 per partner)
- Number of reached secondary and secondary vocational IT school teachers (the target value is 20)
- Number of reached members of the local business communities in the IT and green sectors (the target value is 30)
- Number of reached representatives of environmental organizations or organizations that collect ecological data on a local level (the target value is 16)
- Number of organized multiplier events (the target value is 19)
- Number of requests for the use of project outputs and replication of project results

Qualitative Indicators:

- The (positive) evaluation of the work package by project team members
- The (positive) evaluation of the work package by the three members of the Quality Assurance Team
- The (positive) peer review of all developed project outputs
- Participants' interest in multiplier activities and the use of available outputs
- Participants' interest in future collaboration and project work



Methods of Evaluation:

- Surveys and feedback forms from event participants
- Quality Assurance Team assessments
- Peer review of project outputs
- Tracking requests for project outputs and replication
- Follow-up surveys to gauge ongoing interest and collaboration opportunities

2.3. Responsibilities

2.3.1. Work Package 1: Project Management

Related to the WP1, the Polytechnic of Šibenik will be in charge of general project management, narrative and financial reporting and communication with the National Agency, distribution of funds, and dissemination of project results. All partners will contribute to the local management of the project, including financial and narrative reporting, the dissemination and sustainability of project results locally, the selection of target groups and team members, and the timely and successful conclusion of all activities. The distribution of responsibilities is regulated by a Consortium Agreement signed at the beginning of project implementation.

2.3.2. Work Package 2: Transnational Project Team Meetings

Twelve people will participate in this work package, two each from the six partner organizations included in the project. Two representatives of the associated partners, Oracle and Coalition for Perspective Prespa, will also join some of the meetings, as will others who have been selected by the project team, such as representatives of local green businesses, environmental data collecting institutions, and local authorities. The expenses of such guests are not included in the requested funding and will not be covered by the EU grant.

Each partner institution will be in charge of organizing a number of physical and online meetings.

All partners except the National Technical University of Ukraine will organize one physical meeting. The Polytechnic of Šibenik and the University of Zadar will organize the meeting in Croatia jointly.

All partners except Vegova will also organize one virtual meeting.

The total number of organized transnational project team meetings will be four physical and five virtual. The project team members from the partner institution in charge of organizing a specific meeting will be responsible for preparing an agenda with defined topics and time allotted for each subject, sending meeting



invitations, organizing and paying for facilities and needed equipment/software, preparing attendance lists, and preparing the meeting minutes. Sending institutions will be responsible for arranging and paying for their project team members' transport and accommodation expenses.

The project manager will lead all meetings, deliver reports on project progress, and collect information about indicators. A meeting minutes taker will be elected at each meeting and responsible for taking meeting minutes and distributing them to other project team members. Communication will be apparent, open, and cooperative. The role of the associated partners will be to keep up with the project's progress and to support project implementation.

2.3.3. Work Package 3: Training and Exchange of Expertise for Educational Staff

The WP3 will be coordinated by and take place at the University of Zadar, which will be responsible for its overall organization and success. It will assemble training materials, prepare the training agenda and attendance sheets, provide access to its premises and its data monitoring and collecting equipment, collect information about indicators, and prepare an internal report. Since this work package is based on an exchange of expertise, the educators of all partner organizations will participate actively in the preparation, implementation, and follow-up activities. No external trainers will be engaged. Each participant will contribute by preparing and providing training in their area of expertise and by participating in follow-up consultations related to the topics covered during the training.

The National Technical University of Ukraine will provide environmental analytics and data on aquatic ecosystems in Ukraine, offering researchers the unique opportunity to study the impact of crises on the environment.

The University of Zadar will share its data collection methodology and lead the training and exchange of expertise on aquaculture.

Ss. Cyril and Methodius University will provide training on data preparation and governance, database systems for big data, and dashboarding and "self-service" analytics. LUISS Guido Carli staff will provide training on the design, analysis, and engineering of algorithms for big data sets, including graph theory and visualization.

Luiss University will also be responsible for the quality assessment of the work package through internal evaluations and an assessment by the quality assurance team.

The Polytechnic of Šibenik staff will demonstrate the use of advanced AI & ML models and algorithms in environmental data analysis. It will also be responsible for issuing ECVET points to the 15 educators.

Vegova will provide insights into methodologies for working with diverse groups of (vocational) learners.



2.3.4. Work Package 4: Development and Piloting of 2 Bachelor's Level Elective Courses and a Digital Seminar

The work package includes a wide range of activities and intellectual outputs, and all partners' involvement is needed for them to be completed on time.

The Polytechnic of Šibenik will coordinate the creation and piloting of the digital seminar, as well as the creation of the learning and teaching materials. Its educators and researchers have direct experience managing EU projects and possess advanced specialized knowledge related to the technical component of the project (machine learning and database design).

The University of Zadar, with its capacity to generate local sea-related data and its expertise in sea studies and aquaculture, will generate original environmental data to be used in course development. The National Technical University will also develop original environmental data to be used in course development. It will coordinate the development and piloting of the elective courses on machine learning and database design. It has the technical and organizational capacities to perform this task.

Ss. Cyril and Methodius University will coordinate cooperation with the Coalition for Perspective Prespa on the local level. They will oversee the creation of a case study on using data analytics to manage aquatic ecosystems sustainably.

LUISS Guido Carli will be responsible for quality assessment and peer evaluations of all activities. It will use its developed cooperation with the business sector to ensure that project results incorporate the competencies needed in the labor market and respond to employer needs. It will also supervise the writing of the joint academic paper on the intersection of machine learning and environmental protection.

Vegova will pilot the digital seminar on vocational school pupils and NEETs.

Oracle, the Coalition for Perspective Prespa, and Vegova will contribute to the development of educational outputs by bringing in the perspectives of employers, local communities, and secondary schools.

2.3.5. Work Package 5: Multiplier Events

All multiplier events will be planned and implemented locally, with each partner responsible for planning and organizing the events taking place in the country. To ensure the cohesion and impact of local events, some central planning will be carried out transnationally with Ss. Cyril and Methodius University coordinate the work of all members of the project team (professors, lecturers, teaching assistants, and secondary vocational school teachers) working on this work package. This will include the preparation of common materials that will be localized and distributed by the partners and the setting up of similar agendas for multiplier events.



The Polytechnic of Šibenik, Ss. Cyril and Methodius University and Vegova will each organize a meeting with secondary school teachers, a meeting with secondary school pupils, a presentation to the local business community, and a presentation to representatives of environmental organizations or organizations that collect environmental data at the regional level.

LUISS Guido Carli will organize a meeting with secondary school pupils, a presentation to the local business community, and a presentation to representatives of environmental organizations or organizations that collect environmental data at the regional level.

The KPI will organize in-person meetings with secondary school pupils and teachers. Based on the situation in the country at the time of implementation, they might be moved online for safety reasons.

The University of Zadar will organize a meeting with secondary school pupils and a presentation to the local business community.

LUISS Guido Carli will be responsible for carrying out evaluations and quality assurance for all multiplier events.

2.4. Evaluation tools

Several evaluation tools will be used: discussions in project meetings and via emails, peer review to evaluate the main deliverables, evaluation questionnaires for internal evaluation by project partners, and external assessment by the target group.

The Quality Assurance Manager will organize the peer review, assign the reviewers (each partner must provide one peer review), collect and analyze their feedback, and develop the peer review template to be used in the review process.

The partners and the Quality Assurance Manager will evaluate the results that do not require peer review. To respect anonymity and simplify the analysis, the evaluation questionnaires will be administered as web surveys.