



Erasmus+

DEVELOPMENT OF INNOVATION PROJECT

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CLEAN-kWAT

Integrating Environmental Considerations into

Energy Systems Development

Final Activity Evaluation Report

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PROJECT SUMMARY

The Rationale

In Turkey and in Europe, number of institutional and legislative elements of environmental reform, as well as the infrastructure development, have been put on the agenda as part of the environmental planning and education where development of energy systems that protect the environment is an important part. Since energy systems, especially fossil fuelled, leads to global warming, the energy systems designs must be done according to the rules of environmental protection and prevent the destruction of natural resources.

In the energy departments in many universities in Turkey there are no obligatory courses related to environmental impact of energy supply. Since the departments for energy systems engineering show increasing trend in recent years, there is a need for supporting education with training materials, especially with innovative ones.







Therefore, the main target group of this project is energy systems designers and engineering students in related departments mainly in energy systems engineering. The European Qualification Framework (EQF) aims to make National Qualification (NQF) understandable in Europe to allow the mobility of workers between countries and to make common learning system. It is necessary to enhance the quality and performance of VET system through improving guidance systems, promoting creativity, innovation and sharing EU experience in the field of education and training.

The CLEAN-kWAT project will address these issues through development of Learning Outcomes based training systems and redefinition of competence standards. It will highlight required skills and competences for working in energy supply sector, adapt and develop courses in accordance with this and use ICT in teaching and learning activities.

The main focus is to develop Strategic Partnership and share knowledge and experience between partners that are recognized to be national experts in the environmental and energy sectors.

The Main Aims

The main project's focus is to develop and launch a Strategic Partnership framework





in the field of sustainable development of energy supply sector with environmental concerns leading to the establishment of a joint trans-European competence based training VET model regarding the shift of EU labour market towards smart and green jobs. The model will be based on an EQF framework & on established national models, methods & experiences in the partner countries.

The Objectives

Since energy systems including the renewable have impact on environment and nature, the engineers and engineer candidates are lack of knowledge on the functions of ecosystems and ecological mechanisms and the training materials and techniques are not inclusive enough, in addition to technical

aspects energy systems design processes including the energy systems development, it is certainly required to integrate environmental concerns deeply as well. Along this line, the project focuses on the 'impacts of energy systems including renewables on the environment and nature' and it is aimed to train energy systems designers and students on the vulnerability and fragility of ecosystems and nature.

The objectives are comprised of an innovative approach based on EQF and ECVET principles; design of blended learning program; build up a broad multi-language







learner-centred e-platform; set up a structural model based on the specific needs of education of VET professionals and arrangement of VET pathways; testing/valorisation of the CLEAN-kWAT outcomes.

The Results

• Training book on Integrating Environmental Considerations into Energy System Development: The book covers technological and environmental aspects of conventional energy production systems (thermal power plants) and renewable energy sources (nuclear, wind, wave and tidal, geothermal, hydrogen gas, biomass).

• Documentaries (visual training materials): They will be produced for each chapter of the Training book and distributed on DVD and YouTube.

• Description of the Qualifications, Learning Objectives and European components: It contains descriptions of the selected professions in the Energy field in participating countries with defined knowledge, skills and competences for these professions.

• E-learning Portal: This knowledge data base will provide competence based carrier development. Besides project information, it will have interactive e-learning environment with training courses.







The Consortium

The CLEAN-kWAT consortium has been organized & based on the different backgrounds and strengths of each partner. It includes 8 partners from 5 countries – TR, SP, HU, RS and GE, and is composed of 3 Universities, 2 Research & Training Centre, 1 NGO & 2 SME's.

In addition, the CLEAN-kWAT consortium's members have a wide range of experience in national/EU programs; they possess the necessary capability, expertise and competence for implementation of the CLEAN-kWAT projects and successfully achieve its objectives-based training.

The Main Outcomes

The main outcomes of the CLEAN-kWAT project are:

- delivery of system for structural description of work-related competences
- organization of interactive technical support system with multilingual operational capacity
- introduction of educational support services, including novel training opportunities for VET professionals
- personalization of learning paths of specialized knowledge
- planning and performance of project testing







• evaluation and valorisation

 the CLEAN-kWAT project will contribute to the partners' respective national VET systems' development in compliance with EU standards thereby expanding network formation.

Duration: 1 October 2016 – 30 September 2018







Partners and Contacts:

Partners	Contact Persons
GIRESUN UNIVERSITY	Ms. Başak Taşeli Mrs. Duygu Altıok Mr. Evren Altıok
ORKON INTERNATIONAL ENGINEERING TRAINING CONSULTING CO.INC.	Mrs. Altan Dizdar Mr. Ertuğrul Dizdar
GAZİ UNIVERSİTY	Mrs. Gamze Yücel Işıldar Ms. Feriha Yıldırım
RENEWABLES ACADEMY (RENAC) AG	Ms.Manolita Wiehl Ms.Uta Zahringer
KALI ENERGY SOLUTIONS CO.	Mrs. Şahika Kardam







	Mr. Mehmet Ali Kardam
ASOCIACION AMIGOS DE EUROPA LEONARDO DA VINCI	Mr. Jose M. Daza Mr. Antonio Enamorado
UNIVERZITET U BEOGRADU	Mr Branislav Zivkovic Mr. Aleksandra Sretenovic
ENERGIAKLUB SZAKPOLITIKAI INTEZET MODSZERTANI KOZPONT EGYESULET	Ms. Cecilia Lohasz

PROJECT EVALUATION APPROACH

This is the activity evaluation report to be produced regarding the Erasmus+ CLEAN-kWAT project. It is focused on the review of tasks/outcomes, and the general operational approach, including:

- a review of project materials and approaches regarding activities, particularly focused on objectives and results as well as the assessment of the activity tasks,
- the completion of a monitoring report providing information about the project implementation process through collecting and analysing data received from the partners about their activities.







This is the regular systematic collection and analysis of information to track the progress of a project implementation against pre-set targets and objectives.

Evaluation analyzes why intended results were or were not achieved, assesses specific casual contributions of activities to results, examines implementation process, explores unintended results, provides lessons, highlights significant accomplishments or program potential and offers recommendations for improvement. As established in the CLEAN-kWAT evaluation plan, the **evaluation approach** is designed to judge the degree of success of the project in a conventional output/outcome format at its conclusion, as well as to directly support the achievement of project objectives through a process of regular progress review and feedback. It also includes the review of the agreed activity tasks, and assessing partnership strengths and weaknesses. This involves

capturing successes and avoiding difficulties as they might arise through recommended actions that are designed to minimise the incidence of barriers to the successful completion of the project.







Timely generation of project outputs are monitored and partners are informed through monitoring reports twice a year to demonstrate the project's state of play and to take precautions if necessary. By monitoring possible problems are detected quickly with regular reporting, helping foresee the possible delays and to evaluate technical solutions to keep the project on track.

Every information sent by partners is used and the results and recommendations of the monitoring and evaluation should be followed for a successful ending of our project.







Evaluation of the CLEAN-kWAT Project's Activities

Methodology

The main objective of the CLEAN-kWAT activities evaluation report is to identify the strengths and weaknesses of the activities and the project as a whole. This report is for the evaluation of forth six month period of the project which is the dates between 01 April 2018 - 30 September 2018.

In CLEAN-kWAT project; internal monitoring and evaluation is carried out and project progress is monitored through questionnaires and on the basis of work plan.

Partners were asked to complete the questionnaire distributed by KALIENERGY as part of Activity 7's (Monitoring and Evaluation) responsibilities. The respondents were asked to rate the questions/statements accuracy on a scale from 1 to 10 (**1** = **not at all** and **10** = **excellent**; where **2**–**8** represents **varying degrees** in between), except one question where there is a checklist, and a comment space for each question was provided for the respondents, so they could write in their own words any thoughts or concerns.







SUMMARY OF QUESTIONNAIRE ANSWERS

- 1) Delays happened in the last 6 months of the project with respect to terms of reference. And a bit different content in some intellectual outputs produced.
- The results of this project have already raised some new project proposals and shown the importance of the subject . Energy Efficiency might be a new topic. Capacity building of individuals in the field of clean energy and climate change might be considered for new projects.
- 3) The participants on Multiplier events have shown great interest in using the project results, which guarantees project sustainability. However; periodical revisions and update should be done for sustainability of the products. The project outputs and webpage should remain active and be periodically updated after the project is finished and continue to serve for communication with the stakeholders and users.
- 4) In order to be flexible the book (as well as other outcomes) needs to be continuously updated with new researches.
- 5) Training materials produced provide great amount of useful information gathered in one place.

Based on the results of the questionnaire, the followings can be concluded for the final 6 month period of the project;

- Overall the activity coordination is good,
- The coordinators of the activities are clear and available,







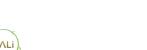
- The time management/timing of the project activities is appropriate,
- The coordinator of the activities are highly involved in the project,
- The activity coordinator takes into account the suggestions and contributions by the partners,
- The products that are produced in activities are suitable,
- The products are appropriate for the target group,
- The products comply with the activity's aims and objectives.

OVERALL WORK PACKAGE RESULTS

The **overall score** of **9.15** for the CLEAN-kWAT activities, based on the response from the partnership, reflects a high level of satisfaction with CLEAN-kWAT project outcomes and working methods.

Average Rating

The Objectives and Results overall average is 8.77.









Mainly insufficient national financial resources to follow-up on the project and lack of national priority/commitment to this type of development are likely to limit the impacts and counteractions are required for sustainability of this project. Technical weaknesses in project outputs/recommendations, low level of achievement of project objectives and lack of attention to natural resource sustainability follow.

Activity ratings are given below;

- o <u>Activity 1</u>'s overall average is 9.34.
- o <u>Activity 2</u>'s overall average is 9.01.
- o <u>Activity 3</u>'s overall average is 8.97.
- o Activity 4's overall average is 8.92.
- o Activity 5's overall average is 9.44.







- o <u>Activity 6</u>'s overall average is 9.21.
- o <u>Activity 7</u>'s overall **average** is **9.47**.
- o <u>Activity 8</u>'s overall average is 9.10.

EVALUATION NOTE

The results indicate that the CLEAN-kWAT project partners are satisfied with the results of the project.

The following section includes the questionnaire questions/statements with graphic illustrations of the results.







PROJECT CLEAN-kWAT

Final Activity Evaluation Annex









OBJECTIVES and RESULTS

1) As you go through the Project do you think that the goals and the objectives of the Project and the expected results were ready on due time?











2) Do you believe that Project ran according the Activities set before in terms of time management and contents? If not, Please explain the reasons.



<u>Comments:</u> -Delays. A bit different content in some intellectual outputs.







3) Do you believe that the results that will be obtained in this project will be a source of inspiration for the creation of other new projects? If yes, how? If not, why?



Comments:

-The results of this project have already risen some new project proposals and shown the importance of the subject

-Energy Efficiency might be a new topic

-Capacity building of individuals in the field of clean energy and climate change might be considered for new projects.

4) Do you think that this Project will be sustainable in terms of its results and outcomes?







Comments:

-The participants on Multiplier events have shown great interest in using the project results, which guarantees project sustainability.

-Periodical revisions and update should be done for sustainability of the products. -The project outputs and webpage should remain active and be periodically updated after the project is finished and continue to serve for communication with the stakeholders and users.







5) Do you believe that the tools under development exhibit a level of flexibility and adjustment to changing conditions and needs with regards to the target groups identified?



Comments:

In order to be flexible the book (as well as other outcomes) needs to be continuously updated with new researches.





6) To what extent do you believe that the training material that is developed offer professional advice for the target groups reached?



Comments:

It provides great amount of useful information gathered in one place







7) What can you say about the innovative aspect of the materials that are produced in the project?





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8) Which of the following factors are most likely to limit the sustainability of the project effects and impact?

X Non-economic attractiveness/viability of the outputs developed by the project Technical weaknesses in project outputs/recommendations Lack of attention to natural resource sustainability

- X X Lack of social/political realism in project outputs/recommendations
- X Insufficient involvement/participation by beneficiaries
- ${f X} {f X}$ Insufficient national financial resources to follow-up on the project
- X X X Lack of national priority/commitment to this type of development
- ${f X}$ Low level of achievement of project objectives
- XX None
- Other (specify): Find a public body or university which could homologate the proposed ECVET credit of the trainin course







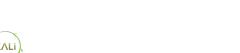
Activity1: Project Organisation & Management

Coordinator: GIRESUN+ORKON

9) The overall activity management is good.



10) The coordinator of the activity is clear and available.

















11) The coordinator of the activity is working very successfully.



12) The time management of the activity is appropriate.

















13) Respect to the deadlines is appropriate and takes into account consideration of other project partners.



14) The coordinator is highly involved in the CLEAN-kWAT project.









15)









15) The products comply with the activity aims and objectives.



16) Problem solving strategies are well implemented by the coordinator.











17)The coordinator takes into account the suggestions and contributions of the other partners.



18) The products that will be produced by this activity will be perfectly suitable for the project.

















19) The products are appropriate for the CLEAN-kWAT target group.











Activity2:Development of the Training Book

Coordinator: *GIRESUN* **Responsible partners:** *GIRESUN* + *GAZI* + *ENERGIAKLUB* + *BELGRADE*

20) The overall activity management is good.



21) The coordinator of the activity is clear and available.



















22) The coordinator of the activity is working very successfully.



23) The time management of the activity is appropriate.



24) Respect to the deadlines is appropriate and takes into account consideration of other project partners.









25) The coordinator is highly involved in the CLEAN-kWAT project.



26) The overall quality of the products that are produced upto now is high.

















27) The products comply with the activity aims and objectives.



28) Problem solving strategies are well implemented by the coordinator.











29)The coordinator takes into account the suggestions and contributions of the other partners.









30) The products that will be produced by this activity will be perfectly suitable for the project.









31) The products are appropriate for the CLEAN-kWAT target group.









Activity3:Development of Documentaries

Coordinator: *AELV*

Responsible partners: *AELV* + *BELGRADE*

32) The overall activity management is good.









33) The coordinator of the activity is clear and available.











34)The coordinator of the activity is working very successfully.



35) The time management of the activities is appropriate.









36) Respect to the deadlines is appropriate and takes into account consideration of other project partners.



37) The coordinator is highly involved in the CLEAN-kWAT project.









38) The overall quality of the products that are produced upto now is high.



39) The products comply with the activity aims and objectives.









40) Problem solving strategies are well implemented by the coordinator.









41)The coordinator takes into account the suggestions and contributions of the other partners.



42)The products that will be produced by this activity will be perfectly suitable for the project.









43) The products are appropriate for the CLEAN-kWAT target group.



















Activity4: Description of Qualifications, Learning Objectives and European

components

Coordinator: *RENAC*

Responsible partners: *AELV* + *BELGRADE*

44) The overall activity management is good.



45) The coordinator of the activity is clear and available.









46) The coordinator of the activity is working very successfully.





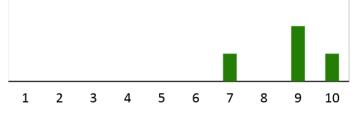






47) The time management of the activities is appropriate.

Satisfaction Level



48) Respect to the deadlines is appropriate and takes into account consideration of other project partners.







49) The coordinator is highly involved in the CLEAN-kWAT project.



50) The products comply with the activity aims and objectives.









51) Problem solving strategies are well implemented by the coordinator.



52) The coordinator takes into account the suggestions and contributions of the other partners.









53) The products that will be produced by this activity will be perfectly suitable for the project.









54) The products are appropriate for the CLEAN-kWAT target group.











Activity5:Setting up the e-learning Portal

Responsible Partner: ORKON

55)The overall activity management is good.



56) The coordinator of the activity is clear and available.









57) The coordinator of the activity is working very successfully.









58) The time management of the activities is appropriate.



59) Respect to the deadlines is appropriate and takes into account consideration of other project partners.









60) The coordinator is highly involved in the CLEAN-kWAT project.



61) The overall quality of the products that are produced upto now is high.









62) The products comply with the activity aims and objectives.









63) Problem solving strategies are well implemented by the coordinator.









64) The coordinator takes into account the suggestions and contributions of the other partners.



65) The products are appropriate for the CLEAN-kWAT target group.









Activity 6: Testing of the Products

Coordinator: *ENERGIACLUB* **Responsible partners:** *ENERGIACLUB*+ *GIRESUN* + *GAZI* + *BELGRADE* + *ORKON KALIENERGY* + *AELV* + *KALIENERGY*

66) The overall activity management is good.









67) The coordinator of the activity is clear and available.



68) The coordinator of the activity is working very successfully.







69) The time management of the activities is appropriate.











70) Respect to the deadlines is appropriate and takes into account consideration of other project partners.



71) The coordinator is highly involved in the CLEAN-kWAT project.









72) The overall quality of the products that are produced upto now is high.



73)The products comply with the activity aims and objectives.









74) Problem solving strategies are well implemented by the coordinator.



75) The coordinator takes into account the suggestions and contributions of the other partners.









76) The products are appropriate for the CLEAN-kWAT target group.











Activity 7: Monitoring and Evaluation of the Project

Responsible partner: *KALIENERGY*

77) The overall activity management is good.









78) The coordinator of the activity is clear and available.



79) The coordinator of the activity is working very successfully.









80) The time management of the activities is appropriate.



81) Respect to the deadlines is appropriate and takes into account consideration of other project partners.





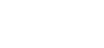




82) The coordinator is highly involved in the CLEAN-kWAT project.



83) The overall quality of the products that are produced upto now is high.









84) The products comply with the activity aims and objectives.













85) Problem solving strategies are well implemented by the coordinator.



86) The coordinator takes into account the suggestions and contributions of the other partners.











87) The products are appropriate for the CLEAN-kWAT target group.



Activity 8: Dissemination, Exploitation & Sustainability of the Project

Coordinator: *BELGRADE* **Responsible partners:** *BELGRADE* + *GIRESUN* + *GAZI*+ *ENERGIAKLUB* + *AELV* + *ORKON* + *KALIENERGY*

88) The overall activity management is good.









89) The coordinator of the activity is clear and available.



90) The coordinator of the activity is working very successfully.









91) The time management of the activities is appropriate.









92) Respect to the deadlines is appropriate and takes into account consideration of other project partners.



93) The coordinator is highly involved in the CLEAN-kWAT project.









94) The overall quality of the products that are produced upto now is high.











95) The products comply with the activity aims and objectives.



96) Problem solving strategies are well implemented by the coordinator.











97) The coordinator takes into account the suggestions and contributions of the other partners.











98) The products are appropriate for the CLEAN-kWAT target group.





