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PROJECT NUMBER - 2016-1-TR01-KA202-33958

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DEVELOPMENT OF INNOVATION PROJECT

2016-1-TR01-KA202-33958

CLEAN-kWAT

**Integrating Environmental Considerations into
Energy Systems Development**

Evaluation Report on Project Activities

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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.





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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





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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





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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



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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





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- 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





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Partners and Contacts:

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



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		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
	ENERGIACLUB SZAKPOLITIKAI INTEZET MODSZERTANI KOZPONT EGYESULET	Ms. Cecilia Lohasz

PROJECT EVALUATION APPROACH

This is the activity evaluation report 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.





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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.





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Timely generation of project outputs were monitored and partners were 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 were 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 was used and the results and recommendations of the monitoring and evaluation were followed for a successful ending of our project.





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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 consists of the evaluation of four six monthly period of the project which is the dates between 01 October 2016 - 30 September 2018.

In CLEAN-kWAT project; internal monitoring and evaluation was carried out and project progress was 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.





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SUMMARY OF QUESTIONNAIRE ANSWERS

- 1) The project was controlled, managed & coordinated perfectly starting from the start of the project and the tasks were expected to be finished in time. The coordinator was dealing with everything in the project and trying to fulfil the tasks and outputs successfully. The coordinator warned the partners whenever there was a delay, in this respect there had been no delay in the project.
- 2) A special interest was given to the feedbacks from other partners on final version of scripts in order to prevent delays. By the successful management of this coordination, successful results for our project were achieved.
- 3) However, in some Activities, the understanding of goals and necessary results were different from the view of each partners. By the progress in the project outputs, this problem was solved.
- 4) This project is already raising interest in future elaboration and new projects proposals. It has shown the importance of the subject. It's a good beginning point and could be applied with the same methodology to other projects related to climate change, and for different professions it could be revised. As a matter of fact, there is already an ERASMUS project proposal that is inspired by this project. 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.



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- 5) The sustainability will be ensured if the training materials are included to existing curriculum and updated regularly after the completion of the project, and other universities and public bodies that could certify the credits of the training course are involved. and also the professions can be extended later by a group study altogether for the sustainability of

the project. 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.

- 6) The innovation is in the training pathways and the homologation of credits. Application of EQF, ECVET principles are important for the project, this is a new concept in EU to ease the mobility of the professions between the countries. Participants get the courses and the tests to gets the qualifications and by having these qualifications, they can introduce themselves internationally in EU and can find jobs more easily.
- 7) The products produced are very successful for the CLEAN k-WAT target group and our outputs will attract a lot of attention from them. However, next steps should be gone to increase their knowledge. EQF 6,7 need more technical content, and study cases. The book will serve to energy and an





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environmental sector very successfully as there was a need of this training material for the workers in these sectors. Outputs of this project will attract a lot of attention from them. The documentaries will not be only for target group, it will be available to any public in general. In order to be flexible, the book (as well as other outcomes) needs to be continuously updated with new researches. Training materials produced provide great amount of useful information gathered in one place.

- 8) E-learning modules are a set of training materials presented in an attractive & enjoyable way of teaching to the participants of the course.

Once they learn the subject of the course, they have chance to test themselves by a set of questions and they can calibrate their competitiveness by the e-learning modules easily. By repeating the course, they can have higher grades from the courses and learn better each time. CLEAN k-WAT Book and the description of qualification, learning objectives were taken into account mostly in the design of the e-learning training materials and by the addition of videos, exams, needed materials for a class-room teaching, the training modules were enriched according to the needs of the course participants.

- 9) Based on the results of the questionnaires, the followings can be concluded for the the project;

- Overall the activity coordination was good,





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- The coordinators of the activities were clear and available,
- The time management/timing of the project activities was appropriate,
- The coordinator of the activities are highly involved in the project,
- The activity coordinator took 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.

The results indicate that the CLEAN-KWAT project partners were satisfied with the results of the project in each evaluation period and gave constructive feedbacks.

OVERALL WORK PACKAGE RESULTS

Evaluation No	Evaluation Period	overall average								Overall Score
		Objectives and Results	A1	A2	A3	A4	A5	A6	A7	





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1	01.10.2016 01.04.2017	8.93	9.33	9.27	9.14	8.95	8.97	8.51	9.61	8.81	9.13
2	01.04.2017 01.10.2017	8.86	9.45	9.44	9.24	9.20	9.52	8.52	9.45	9.41	9.25
3	01.10.2017 01.04.2018	8.91	9.36	9.28	9.07	8.99	9.43	9.10	9.63	9.38	9.25
4	01.04.2018 30.09.2018	8.77	9.34	9.01	8.97	8.92	9.44	9.21	9.47	9.10	9.15
Overall	01.10.2016 30.09.2018	8.87	9.37	9.25	9.11	9.02	9.34	8.84	9.54	9.18	9.20

The **overall score** of **9.20** 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 **8.87**

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.





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Activity ratings are given below;

- o Activity 1's overall **average** is 9.37
- o Activity 2's overall **average** is 9.25
- o Activity 3's overall **average** is 9.11
- o Activity 4's overall **average** is 9.02
- o Activity 5's overall **average** is 9.34
- o Activity 6's overall **average** is 8.84
- o Activity 7's overall **average** is 9.54
- o Activity 8's overall **average** is 9.18

EVALUATION NOTE

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





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The following section, i.e.; Annex includes the questionnaire questions/statements with graphic illustrations of the results of each period of each 6 monthly activity monitoring.





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Annex

