



The CLEAN-kWAT project

E10 Evaluation Assembly in Germany – Multiplier Event report

To:

The CLEAN-kWAT project

By:

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1 Introduction

On the 8th of March 2018, the Renewables Academy organized a workshop at the its premises in Schönhauser do disseminate the existing result of the Clean kWAT project and also to have some feedback for the designated target group which are energy engineers.

2 Aim

The aim of the event was to:

- introduce the Clean-kWAT project and its outputs to them.
- Get feedback to these outputs from persons in the energy sectors
- Assemble ideas on how the products of the project can be disseminated.

3 Participants

Of the more than 20 participants invited to the event, ten answered present (see annex). These were all graduating student of the technical university of Berlin studying “Global production Engineering (GPE)”. GPE is a masters study programme that looks into energy supply system with focus on renewable energy.

4 The workshop

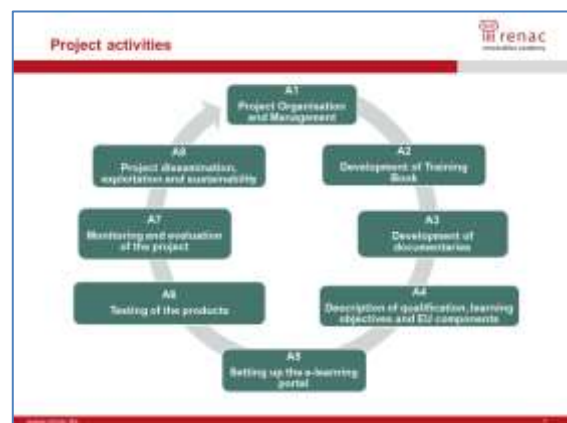
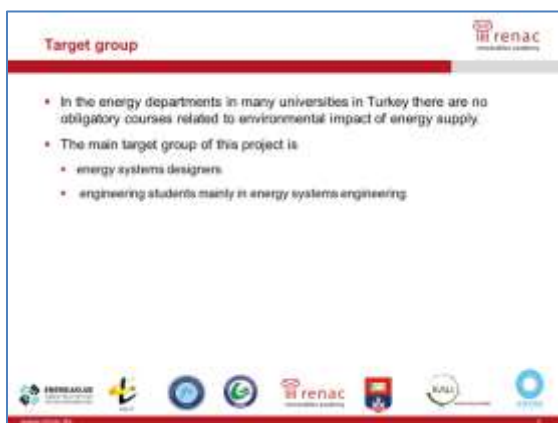
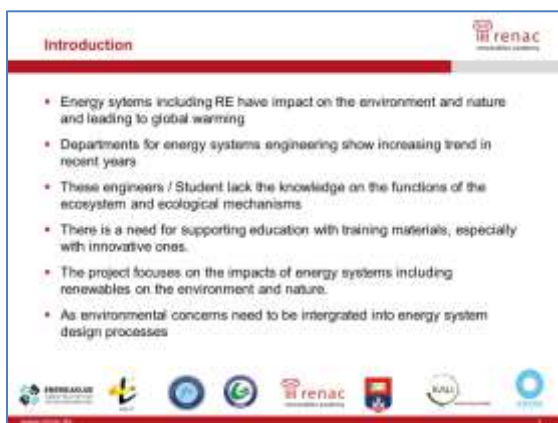
The workshop kicked off at 17:00 with welcoming of the participants and self-introduction to get to know each other. Then the content of the whole workshop was presented to the participant so that they keep an overview of what the session would be about. After taking about the effectiveness of their energy engineering study programmes with regards to the environment, a presentation was held so as to enlightened the participants about the project.

The presenter talked about the following:

- Introduced the subject of integrating environmental considerations into energy systems development and talked about the rational for having such a project which support existing educational systems
- The project goals which were enumerated covering the overall goal and then looking more into the specific ones.
- The envisaged target groups were then brought into focus
- The consortium of partners was introduced, talking clearly about the countries where they are located and what the institution is focused on.
- All eight activities of the project were presented and talked about with these participants and

- the outputs from the activities where individually looked into. The outputs already existing were the focus of the whole workshop were feedback from the would be target group was highly appreciated
- The presentation ended with what is envisaged to be the impact of these project on the target group.

4.1 The presentation



Project partners

The consortium includes 8 partners from 5 countries - composed of 3 Universities, 2 Research & Training Centre, 1 NGO & 2 SME's.

Turkey	Germany	Spain	Hungary	Serbia
<ul style="list-style-type: none"> General University Osaka University Orhan 	<ul style="list-style-type: none"> Reinhold Academy AG (RENAC) 	<ul style="list-style-type: none"> Asociacion Aragonesa de Energia Leonardo da Vinci (AAEVL) 	<ul style="list-style-type: none"> University of Belgrade Energetika 	<ul style="list-style-type: none"> KALENERGY KALU

Project Outputs

- National reports**
- Book** „Integrating Environmental Considerations into Energy Systems“
- Booklet** European Qualification Framework (EQF) and European Credit system for Vocational Education and Training (ECVET) Definitions
- Training materials**
- Videos (Documentaries based on the Book chapters)**
- Knowledge-base Website**
- Moodle e-learning Portal**
- Multiplier events** where all the products are presented and discussed
- Strategic Partnership**

Clean kWAT Outputs

The book- „Integrating Environmental Considerations into Energy Systems Development“

- It covers technological and environmental impacts of conventional and renewable energy systems
- It presents ecological approaches to these energy production systems

Chapter	Title
1	Energy, Environment And Ecological Relations
2	Ecological Footprinting For Energy Systems
3	Conventional Energy Production Systems And Environmental Impacts: Thermal Power Plants
4	Ecological And Environmental Dimensions Of Nuclear Power Plants
5	Solar Energy Systems And Environmental Effects
6	Wind Energy
7	Wave, Tidal And Hydrogen Energy
8	Geothermal Energy
9	Hydropower Energy
10	Biomass Energy Systems

The national reports

- The national reports consist :
 - Introduction of the country
 - Current environmental status
 - National Energy Policies
 - National Environmental Policies
 - Environmental impact of energy production
 - Identification of target group
 - Assessment of Educational needs

Documentaries

- Short movies produced for each chapter of the book
- Used to show the importance of visual training material
- The content is to be part of a training module
- They shall also be available in DVD formats
- Translated to all partner countries language

Booklet on EQF and ECVET

- This applies the European Credit system for Vocational Education and Training (ECVET) based concept and using European Qualifications Framework (EQF).
- Defines a competence standard procedure for international transfer of acquired qualification in the field of sustainable environmentalist energy management
- This entails**
 - Defining and describing of the selected professions in the energy field,
 - making the content definitions of learning units
 - Define comprehensive learning outcome
 - Elaborate the knowledge, skills and wider competences to be acquired
 - Establish Learning Pathways (LPs) designed to match EQF levels 6 and 7 and weighed through ECVET

Moodle e-learning Portal

- To provide competence based carrier development
- It is to acts as knowledge data base for the project in providing:
 - General information about the project
 - Free access information resources and functional tools
 - national and international events in the project field, etc.
- Users can benefit from the training courses on the web portal after registration.
- The e-portal provides several key actions:
 - Device for information Exchange that allows spreading of experience and ideas within and outside the project network
 - It ensures project and post-project life actions via dissemination and exploitation of project outcomes



Evaluate RENACs results

The Professions

Industrial and Production Engineers	Civil engineers	Environmental engineers	Mechanical engineers	Electrical engineers
<ul style="list-style-type: none"> industrial efficiency engineer industrial engineer industrial plant engineer production engineer manufacturing production manager 	<ul style="list-style-type: none"> civil engineer geotechnical engineer structural engineer civil engineering project manager geotechnical metallurgical mining engineer traffic planners 	<ul style="list-style-type: none"> air pollution control engineer environmental analyst environmental engineer environmental remediation specialist wastewater process engineer environmental scientist radiation protection expert 	<ul style="list-style-type: none"> aeronautical engineer engine designer marine architect marine engineer mechanical engineer ship engineer 	<ul style="list-style-type: none"> electrical engineer electric power generation engineer electromechanical engineer nuclear power generation engineer electronics engineer broadcast engineer telecommunication engineers

Learning outcomes

LO	Title	ECVET
1	Energy, environment and the ecosystem	
2	Ecological foot printing for energy systems	
3	Environmental impact and climate change	
4	Conventional energy production systems	
5	Advanced engines and turbines	
6	Pollution sampling and analysis	
7	Atmospheric Pollution: Impacts and Controls	
8	Ecological and environmental dimensions of nuclear power plants	
9	Solar energy systems	
10	Wind energy	
11	Wave, tidal and hydrogen energy	
12	Geothermal energy	
13	Hydropower energy	
14	Business and waste energy technologies	
15	Energy management and conservation (Energy efficiency)	
16	Energy policies, case studies and best practices	
17	Introduction to environmental impact assessment	
All		30.0

Unit of learning outcomes	Title of learning unit	Corresponding learning outcomes
No 1	Introduction to energy and ecosystems	LO1, LO2
No 2	Conventional energy systems and their impact to the environment	LO4, LO5, LO8
No 3	Renewable energy systems and their impact to the environment	LO9, LO10, LO11, LO12, LO13, LO14
No 4	Environmental impact control and assessment	LO3, LO6, LO7, LO15, LO17

Conclusion

- ### The impact on target groups are:
- Get familiar with ecosystem concept and increase in environmental awareness
 - Provide of innovative ECVET-based model for description of vocational qualifications for professionals in energy supply sector
 - Introduce pathway for development of knowledge, skills and competence
 - Delivery of mechanism for transfer and recognition of qualifications acquired within formal and informal settings
 - Establishment of a model in mobility processes, thus promoting the process of transfer and work force mobility
 - Improvement the opportunity for training of VET professionals in the target sector

Following the presentation, the group was now divided into two to brainstorm and give their feedback to the existing outputs and to design a learning pathway for the different professions.

5 Usefulness of Clean kWAT to energy engineering students

The following were the points gathered from the discussions:

- Great idea to add environmental subjects to energy engineering studies
- The professions enlisted as targets are broad but do need these environmental considerations.
- Learning outcomes are clearly defined and useful
- Doubts on whether they can all be covered just with 30 EQVET points. They proposed having the points increased
- The designated learning units are seen as fine.
- The pathways proposed by both groups were the same and were as follows



Figure 1: The defined learning pathways by the group

6 Conclusion

After two and a half hours of workshop, it was concluded that:

- The project is good and can be modified in different situations,
- That persons working in the energy supply system need to look into environmental factors
- That they would like to have a look at the online modules when completed
- That video outputs help in studies though that depends on the individual
- More credit points should be allocated to the learning outcomes

The workshop ended with dinner at a nearby restaurant.

7 Some pictures of the seminar

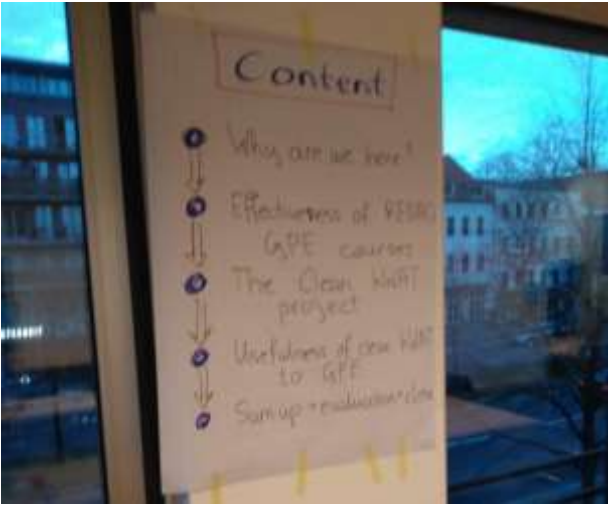


Figure 1: Pictures taken during the workshop



Figure 2: Pictures taken during the workshop



Figure 3: Pictures taken during the workshop

8 Participants list



List of Participants
 „CLEAN KWAT information event“
 08.03.2018- Technical University Berlin



#	Ms./Mr.	Surname	First Name	Country	Signature
1	Mr	Seccedo de Alba	Julio Mauro	Mexico	
2	Mr	Caceres Florez	Carlos Humberto	Colombia	
3	Mr	Zhang	Yue	China	
4	Mr	Narbons	Felipe	Chile	
5	Mr	Alvarez Morales	Diego	Mexico	
6	Ms	Dardón España	Diana Lucia	Guatemala	
7	Ms	Claros Ruiz	Natalia	Bolivia	
8	Mr.	Thomas	Sergood	Australia	
9	Mr.	Daniel	Venegas	Mexico	
10	Mr.	Prathamesh	Ratil	India	

