

Workshop on Life Cycle Assessment and GIS Tools for Energy planning (TW3-TW4)

Siena, 25th-29th September 2017

Workshop presentation report – Tuesday and Wednesday, 26th-27th of September

The session was intended to present case studies focused on environmental assessment methodologies (e.g. environmental indicators) applied to the lifecycle of RES technologies (e.g. quantification of environmental impacts generated by construction and use of RES). Partners were encouraged to use c-maps to explain case studies.

Lebanon

1) Strategic Environmental Assessment of the National Renewable Energy Action Plan of Lebanon (2015-2025)

Rita Njjar and Tony Matar - Lebanese association for Energy saving and Environment (ALMEE)

- Overview of Strategic Environmental Assessment of the National Renewable Energy Action Plan of Lebanon (NREAP)
- Discussion of NREAP using a c-map
- Main findings for NREAP
- Lebanon 2025 objectives

2) Assessment of RES impact on Lebanese environment

Nathalie Bassil – Lebanese University (LU) - Mediterranean Durably Green (MEDGREEN)

- Lebanese strategy for energy supply
- Solar energy (case study of industrial and residential PV and water heater plant)
- Wind energy case study
- Hydropower energy case study

3) LCA comparison between PV and fossil energy production systems

Yaser Abunnasr and Petra Samaha – American University of Beirut (AUB)

- Comparing the impact of the current Lebanese electricity system with production of electricity from PV
- Comparison of four scenarios
- Main LCA results (focus on carbon footprint, energy demand)

Jordan

4) Environmental Assessments and their application to RES Shams Ma'an- Jordan

Nabbeel Al-Kurdi – University of Jordan (UJ)

- Presentation of Shams Ma'an Power Generation PSC
- Impact assessment and mitigation measures on air quality, noise, occupational and community health and safety
- Assessment of cumulative impacts

5) Environmental Impact Assessment (EIA) : The Wind Energy and Concentrating Solar plants project in JORDAN

Nidal Abdalla – Royal Scientific Society (RSS) and Princess Sumaya University for Technology (PSUT)

- Description of WECSP project - two renewable energies systems, wind energy and concentrated solar power
- EIA Methodology
- Impact assessment on Socio-economic conditions, water resources, biodiversity, archaeology, public and occupational health

6) GIS Tools for Environmental Assessment to meet Renewable Energy Goals

Amjad Abu Sirhan - Al Balqa Applied University (BAU)

- GIS tools to create maps from weather data
- Wind and solar map for power generation
- Limitation of areas technically suitable

- Final land suitability map for wind power generation

7) Green House and Embodied Energy Assessment of PV and Wind in Jordan - by mail

Qatada Damra - Jordan University of Science and Technology (JUST)

- Study of environmental indicators applied to the lifecycle of different PV technologies
- Description of energy generation technologies using a c-map
- Embodied energy in PV and energy payback
- LCA of energy return for different technologies

Egypt

8) Environmental Impact for Wind Farm Development at Gulf of Suez

Walid El-Khattam - Ain Shams University (ASU)

- Description of planning of wind farms located in the El-Zayt Gulf
- Egyptian Guidelines for EIA of Wind Farms
- Wind farm development

9)

Portugal

10) Life Cycle Assessment of Electricity in Portugal

António Mortal, Flávio Martins and Marisa Madeira – University of Algarve (UAIG)

- Description of case study
- Results of impact per kWh (non renewable fossil and global warming potential, abiotic depletion, acidification, eutrophication, photochemical reduction, ozone depletion potential)

Spain

11) Environmental Assessment and Sustainable Energy Potential in Andalusia: the biomass' energy potential and its planification

Daniel Ayala Serrano - University "Pablo de Olavide" (UPO)

- Presentation of Andalusia Energy Strategy 2014-2020

- Potential of Renewable energy sources in Andalusia, case study of biomass
- GIS as tool for environmental assessment procedures

Malta

12) Environmental indicators & GIS in the ENERSCAPES project: the case of tuscia romana

Federica Di Pietrantonio – Malta Intelligent Energy Management Agency (MIEMA)

- Description of ENERSCAPES objective and outputs (c-map)
- Scenario development and quantification of environmental indicators
- The case of Tuscia Romana

Italy

13) Environmental indicators & GIS in the ENERSCAPES project: the case of the Pontine plain

Federica Benelli - University of Roma 3

- Description of Pontine Plain using thematic maps
- Energy scenario based on regulatory framework, Land use and energy potential
- Scenario assessment

14) Environmental impact study for a windfarm in southern Umbria (central Italy)

Federico Maria Tardella – University of Camerino (UNICAM)

- Description of Colle Ventatoio windfarm impacts using a c-map

15) Life Cycle Assessment and Lc-map

Elena Neri – University of Siena (UNISI) – 27th of September

The presentation concerned the description of LCA methodology as tool for examining the sustainability of a production chain and its application to RES. LCA methodology was also explained by using a c-map

- Introduction to LCA methodology (origin, the four steps, indicators, communication)
- LCA applications on olive oil production chain and biomass to energy using different input materials.
- LCA in a c-map

16) Tools for sustainability evaluation of RES

Nicoletta Patrizi – University of Siena (UNISI) - 27th of September

- The concept of biorefinery
- Integrated approach in environmental assessment to outline the environmental profile of biorefinery system
- The Biowaste project
- Feasibility study of bioethanol production by crop residues in the Province of Siena

17) Territorial Alliance for Carbon Neutrality: Siena (Italy)

Michela Marchi – University of Siena (UNISI) - 27th of September

- Description of REGES PROJECT – GHG balance of the Siena Province
- Environmental policies at global and local level

18) Carbon Accounting Explained

Riccardo Pulselli – University of Siena (UNISI) - 27th of September

- Presentation of the CITYZEN PROJECT
- Carbon Accounting explained, steps towards zero energy districts
- Case study of Menorca: carbon accounting, household profile, mitigation measures
- The CITYZEN PROJECT in a c-map