TECHNICAL UNIVERSITY OF CRETE (TUC)
SCHOOL OF ENVIRONMENTAL ENGINEERING
RENEWABLE AND SUSTAINABLE ENERGY
SYSTEMS LABORATORY

Interreg Mediterranean COMPOSE

Project co-financed by the European Regional Development Fund

WP3: Testing, Activity 3.2

Integrating existing methods, techniques and approaches towards common methodology for demonstration projects

D3.2.1: COMPOSE Common Methodology for the Demonstration of Pilot Actions

March 2017

European Union
European Regional Development Fund

WP3 (TESTING) LEADER

Technical University of Crete, School of Environmental Engineering, Renewable and Sustainable Energy Systems Lab (TUC ReSEL)

DELIVERABLE 3.3.1: PRELIMINARY OR FINE-TUNING STUDY FOR LAUNCHING PILOT ACTIVITIES

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Interreg Mediterranean COMPOSE

Project co-financed by the European Regional Development Fund

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EXECUTIVE SUMMARY

A key driver of the Europe 2020 Strategy lies in the promotion and implementation of Renewable Energy Sources (RES) as a solid way to readdress the patterns of growth and sustainability. In that sense, the Renewable energy directive EU/2009/28 establishes a framework of reference for the promotion and use of renewable energy in EU member states including binding energy targets for achieving a 20% share of RES in the final energy consumption by 2020. According to the European Commission's Renewable Energy Report, the total share of renewables in the EU was 12.5% in 2010[1]. Although most EU member states have experienced significant progress in RES integration, bigger efforts are expected in the forthcoming years in order to fulfill the commitments.

The overall objective of the Interreg MED programme is to promote sustainable growth in the Mediterranean area by fostering innovative concepts and practices, reasonable use of resources and supporting social integration through integrated and territorially based cooperation approach. Under this aim, the Interreg MED programme will support projects that will promote a more resource-efficient, competitive and greener economy in the Mediterranean area.

The European initiative COMPOSE lies under the **Priority Axis 2. 'Low Carbon Economy'** of the Interreg MED Programme. Fostering a low carbon economy is a key issue for territorial sustainable development and EU objectives and it is especially important for the mitigation of climate change and its strong consequences in MED regions. COMPOSE contributes to the **Specific Objective (SO) 2.2: 'To increase the share of renewable energy sources in energy mix strategies and plans in specific MED territories (island and rural areas)'**, through activities covering an integrated planning, from the designing and analysis process, the demonstration and testing phase, and the transferability and sustainability of the project actions.

[1] Report form the commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013DC0175&from=EN

ACRONYMS – ABBREVIATIONS

COMPOSE	Rural **COM**munities engaged with **POS**itive **E**nergy
EE	Energy Efficiency
EEM	Energy Efficiency Measures
EU	European Union
GHG	Greenhouse Gas Emissions
GIS	Geographic Information System
LEAP	Long-range Energy Alternatives Planning system
LSEAP	Local Sustainable Energy Action Plan
MED	Mediterranean
RES	Renewable Energy Sources
SEE	South East Europe

1. INTRODUCTION

1.1. About Compose

COMPOSE builds on existing experience and know-how of MED/EU funded projects, existing initiatives and best practices, aiming to provide a holistic approach for RES planning models that will promote the increase of RES in the regional/local energy mix through the development of sustainable energy supply chains and the enhancement of local businesses.

In such a way, COMPOSE will contribute to an increased capacity for sustainable RES projects development at the decision-making and planning levels and will support new business models and new technology applications aspiring to combine green economy by utilizing the local potential. At principle, the project addresses the knowledge and capacity needs, and deals with sectorial policies and financial instruments required to encourage sustainable use of local natural resources and green investments.

1.2. Aim of the task

Work Package 3 focuses on the development, monitoring and evaluation of 15 pilot demonstration actions that will be implemented in 11 Mediterranean countries (Slovenia, Cyprus, France, Greece, Italy, Portugal, Spain, Croatia, Albania, Bosnia & Herzegovina, Montenegro). Its objective is to assess existing methods, techniques and tools dealing with the integration of RES and energy efficiency projects in the local development strategies, in order to form a common methodology for planning that will take into account not only technical but also socio-economic and environmental aspects. The proposed methodology, adapted to the identified pilot projects and local specifications, will serve as a basis for the preparation of individual implementation plans and will be tested on the field. The development of the 15 pilot demonstration actions will assist to fine-tune the COMPOSE methodology and will enable the transfer of know-how to planning experts and decision makers.

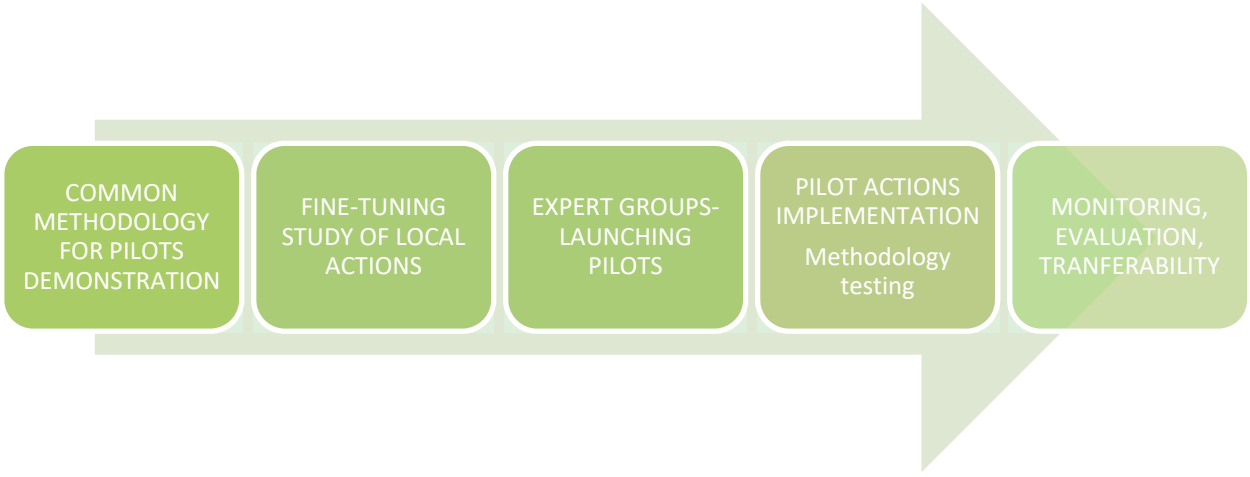

Figure 1: WP3 development steps

This document aims to describe the proposed COMPOSE Common methodology for demonstration and highlights the importance of identifying synergies between existing initiatives and best practices. It will be used to establish the context and a coherent process, by determining key milestones that need to be elaborated, for the following activities of WP3 (Testing):

- 3.2 Integrating existing methods, techniques, tools and approaches towards a common methodology for demonstration.
- 3.3 Preparing individual pilot implementation plans.
- 3.5 Implementing pilot actions
- 3.6 Evaluation of pilot action implementation in the field level

1.3. How to use this guide

This guide is focused on introducing to the methodology development work carried out in the framework of the task 3.2 (WP3), as well as on addressing the challenging concept of COMPOSE project: how the existing knowledge, techniques, methods and tools, as part of a holistic approach, will contribute to the future local development planning.

Specifically, the purpose of this guide is to:

- Provides a concise, birds-eye view of the COMPOSE model functionality.
- Elaborates on specific value adding aspects of COMPOSE that are highlighted in the project and have received particular attention in the COMPOSE model approach; such are the various Energy Planning tools at national levels, relevant databases etc.
- Highlights how COMPOSE addresses the “existing knowledge” and contributes to its exploitation.

The guide is structured as follows:

- Executive summary.
- **Section 1**, introduction.
- **Section 2** discusses the added value of COMPOSE project and determines specific key issues that should be emphasized such are the synergies with past or current EU and other projects or initiatives**.**
- **Section 3,** details the COMPOSE methodological approach, explaining the main implementation steps.
- **Section 4**, Conclusions.

2. REVIEW ON EXISTING METHODS, TECHNIQUES AND TOOLS

2.1. Organization of work

Understanding how the COMPOSE common methodology can exploit the existing "knowledge" is discussed on a per approach basis; such approaches and methodologies from past projects and initiatives are presented and a systematic review is conducted in this section.

Specifically, activity 3.2 started from a list of already developed approaches for RES development and EE measures - all taking into consideration the different aspects of holistic planning (i.e. technical, socio-economic, environmental) - which are in line with the broader goals of the project.

After the review on existing methods, techniques and tools, and the implementation of pilot actions, partners will be asked to report on the synthesis relevance, identifying the positive and negative elements as suggestions for the improvement of a common methodology.

2.2. Identified synergies

The main idea of COMPOSE common methodology is to design and implement a synthesis approach for RES development and EE measures implementation that will increase the share of green energy sources in the energy mix of specific areas, rural and island areas and of the Mediterranean area at large. This approach will be based on existing experience and know-how from projects implemented in the programme area in the previous financial period and other EU programmes and initiatives. Taking the best of previous projects' results, COMPOSE project will make a step further and suggest that this model should be used as part of development planning regardless of the intention to plan for RES of the selected area. To this purpose, synergies and complementarity potentials were investigated. The identified synergies are listed in the following table.

Table 1: List of Synergies

Programme and period	Project (Acronym)	Output	Description – Linkage with the expected new project deliverables/outputs
MED 2007-2013	GreenPartnerships	LOCAL PARTNERSHIPS FOR GREENER CITIES AND REGIONS. *Practical* Step By Step *Guide for Implementing Effective Local Energy Action Plans*	The Step by Step guide provides socioeconomic aspect of RES and EE project implementation taking into consideration stakeholder participation and neutral position toward individual RES or EE measure. Its approach will serve as participatory model/backbone of the MODEL.
MED 2007-2013	ENERSCAPES	Guidelines for Integration of Renewable Energies in Mediterranean Landscapes	ENERSCAPES Guidelines will serve as environmental aspect of RES planning, balancing between environmental strategies and energy production
MED 2007-2013	ENERCOAST	RES state of art in Adriatic Ionian area	Overview of RES state of art and their suitability for development and also analysis of investor attractiveness and readiness to invest will be analysed to better understand specific aspects of the private sector in future investments in RES in MED area. These aspects will be integrated as economic criteria into the MODEL.
MED 2007-2013	SCORE	Case studies Reports	MED area is characterized by cultural heritage buildings which can be a potential for new eco innovative RES and EE measure implementation. Reports will serve as input for criteria on cultural valorization and development potential in the MODEL.
SEE 2007-2014	ATTRACT SEE	Indicators of territory Attractiveness	Key input for COMPOSE model will be "The attractiveness" indicators developed within the ATTRACT SEE project. Since the SEE programme area is partially overlapping with the MED area they are especially interesting and relevant and will serve as criteria for development modelling.
Stockholm Institute	LEAP	Tool	LEAP tool is one of the most commonly used Energy Planning tools at national levels. It will serve as mid to long term energy planning tool

			that in combination with development scenario planning tool QuickScan provides necessary planning support at regional and national planning level for policy decision makers.
Managed by IRENA	IRENA	Database	Despite many specific data provided by MED projects, there is a need for national level aggregated data on RES potential which is regularly updated. IRENA database will serve as one of the main data sources for RES planning in combination with GEOPORTAL.
INSPIRE Directive	GEOPORTAL	GIS data provide	In combination with IRENA database, GEOPORTAL will be the second data source when addressing holistic RES planning. Established under INSPIRE directive it gathers GIS data at EU level and will serve as input also for various non energy related data that need to be considered when planning for RES development.
EEA	QUICKSCAN	Scenario development/modelling tool	Combining qualitative and quantitative data in easy to understand and visual form is the key advantage of the QUICKSCAN tool. It will be used for fast scenario modelling upon area specific or territory at large data in combination with qualitative criteria set by planners.

2.3. Added value for the COMPOSE project

The main purpose of COMPOSE is to make RES planning and inclusion of EE horizontal principles, basic criteria for development planning at large. It is, therefore, crucial to elaborate and develop a new methodology that will promote the increase of RES share in the regional/local energy mix through the development of sustainable energy supply chains and the enhancement of local businesses. In its essence, COMPOSE aims at a holistic approach for A NEW DEVELOPMENT MODEL using a win-win strategy (between service providers, decision makers, local communities).

In this section certain value adding aspects of COMPOSE project will be discussed aiming to exploit the existing experience and know-how of MED/EU funded projects, as well as other best practices in RES development planning.

Specifically, COMPOSE methodology will build on the following:

- → Projects ENERSCAPES and ENERCOAST - for the overview of state of art of RES in the area,
- → Projects GreenPartnerships and SCORE - to provide input on common methodologies and governance models,
- → IRENA database, managed by International Renewable Energy Agency and
- → EU GEOPORTAL to provide national data of importance to development planning.
- → Two specific IT tools will also be integrated into the model:
    - o LEAP - Long range Energy Alternatives Planning System, developed by Stockholm Environment Institute and
    - o QuickScan for development planning, developed under the project financed by European Environmental Agency.

2.3.1. Green Partnerships – Local Partnerships for Greener cities and regions

GreenPartnerships – Local Partnerships for Greener cities and regions	Green Partnerships

Objective

GreenPartnerships is focused on the contribution of local communities to the achievement of the objective for EU's decarbonisation. The main objective of the project was to enhance the implementation of local public policies and strategies related to energy efficiency for sustainable development of MED cities and local communities. The establishment of local partnerships supported local administrations to overcome existing obstacles and effectively implement the set measures on the way to energy efficient cities and regions.

Application Area

The partnership has assured broad geographical coverage of the MED territory since it consisted of 12 partners from 11 MED countries (Albania, Bosnia & Herzegovina, Croatia, Cyprus, France, Greece, Italy, Montenegro, Portugal, Spain, Slovenia). Partners represented different territorial aspects of the MED area and the project focused on public buildings and facilities with a considerable energy consumption that provided large potentials for EE measures and RES development.

Main results

- Best practices, 24 case studies feasibility studies: Indicatively
  - Improvement of public lighting in the historic center of the city of Rethymno
  - Championship for energy saving in public buildings; Feasibility study on trigeneration installation for self-consumption and provision of energy services to Granollers
  - Wooden biomass heating for public buildings
  - Local authorities engagement in RES projects; capacity building
- Green Partnerships, Expert working Groups, capacity building materials
  - Solar Energy
  - Biomass
  - Energy Efficient buildings
  - Public Lighting
  - Funding
  - Legislation
  - Stakeholders involvement

- Awareness

- A step by step guide presenting a coherent planning process for the development and implementation of RES and EE projects, by defining milestones, methods and principles.

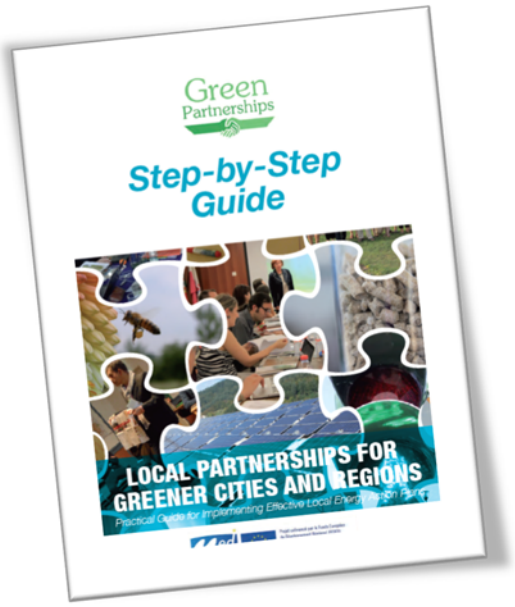

Figure 2: Step by step guide of GreenPartnerships project

Synergies with COMPOSE

The Step by Step guide was developed to simplify the identification, development and implementation of RES and EE projects for better impact in local environments. It provides socio-economic aspect of RES and EE project implementation taking into consideration stakeholder participation and neutral position toward individual RES or EE measure. Its approach will serve as participatory model/backbone of the COMPOSE MODEL.

References – Useful links

1. http://www.greenpartnerships.eu/
2. GreenPartnerships project, Local partnerships for greener cities and regions, *Practical Guide for Implementing Effective Local Energy Action Plan:* http://www.greenpartnerships.eu/wp/wp-content/uploads/GPs_SBSguide_web.pdf
3. GreenPartnerships project, *Capacity building – training materials*: http://www.greenpartnerships.eu/wp/2015/04/14/expert-working-groups/
4. The GreenPartnerships final publication, *The GreenPartnerships pilot actions*: http://www.greenpartnerships.eu/wp/wp-content/uploads/GPs_FP_Complete_FINAL.pdf

2.3.2. ENERSCAPES

ENERSCAPES	

Objective

The ENERSCAPES project was implemented under the MED Priority: “Protection of the environment and promotion of a sustainable territorial development” and the specific objective “Protection and enhancement of natural resources and heritage”. Since the growing use of RES is leading to a new awareness about their compatibility with landscape and heritage preservation policies, ENERSCAPES aimed to represent an important step towards the investigation and evaluation of a large set of impacts on distinct but recurring patterns of the landscape all over the Mediterranean regions.

The general objective of the project was the development of a shared assessment methodology of landscapes "historic", "social" and "environmental" value within the process of introduction of RES systems into MED territories and landscapes, focusing on the balance between environmental strategies on energy production and safeguard of territorial identities. Furthermore, ENERSCAPES' specific objective was to test an energy planning method able to assess and minimise territorial impacts deriving from the use of RES and to take into account the landscape and the environment in the development of the RES market.

Application Area

ENERSCAPES accomplished a wide and balanced geographic coverage, to broaden the range of territorial and environmental aspects of the case studies and to create an exhaustive panel on national and regional procedures. The project had 8 partners from 7 Mediterranean countries (Malta, Italy, France, Spain, Greece, Cyprus, Slovenia).

Main results

- Local Action Plans, supported by territorial analysis, a general overview of the regulatory framework on RES, swot analysis, scenario building and assessment as well as a communication and participation plan e.g. :
  - Action plan for the development of renewable energies and the protection of Landscape (Province of Vercelli, Italy)
  - Local Action Plan for the Exploitation of RES in the Area of Thessaly (Greece)
  - Action Plan for the Development of Renewable Energies and the Protection of Landscape (Community of Agia Anna, Cyprus)

- Action plan (Andalusia, Spain)

- The report titled "Guidelines for RES / landscape assessment" which contains guidelines for the impact assessment of the RES introduction in the MED Area.
- ENERSCAPES Communication material

Synergies with COMPOSE

ENERSCAPES' guidelines will serve as the environmental aspect of RES planning, balancing between environmental strategies and energy production.

References – Useful links

1. http://www.enerscapes.eu/
2. ENERSCAPES project, *Final Guidelines for Integration of Renewable Energies in Mediterranean Landscapes*: http://www.enerscapes.eu/images/downloads/Enerscapes_FinalGuidelines.pdf http://www.enerscapes.eu/images/downloads/Enerscapes_FinalGuidelinesEL.pdf
3. ENERSCAPES project, *Final publication* (*Methodology, Future Perspectives and Guidelines for integration of renewable energies in Mediterranean landscapes*): http://www.enerscapes.eu/images/downloads/Enerscapes_FinalPublication_WEB.pdf
4. ENERSCAPES project, *Deliverables:* http://www.enerscapes.eu/index.php?option=com_content&view=article&id=82&Itemid=77&lang=en
5. ENERSCAPES project, *Communication material*: http://www.enerscapes.eu/index.php?option=com_content&view=article&id=77&Itemid=83&lang=en

2.3.3. ENERCOAST

ENERCOAST	MED MARITIME INTEGRATED PROJECTS ENERCOAST

Objective

The main objectives of ENERCOAST were to elaborate an holistic, updated state-of-the-art of the RES sector focusing on different technologies such as seawater heat pumps, solar cooling systems, wind power plants and wave and tidal technologies and to identify both technical and non-technical solutions for boosting RES exploitation in the Adriatic-Ionian region in order to give concrete proposals to sustain the Blue Growth strategy.

Application Area

The partnership consisted of local authorities, universities, associations representing the 4 participating EU member states of Eusair (Croatia, Greece, Italy, Slovenia).

Main results

- RES Technologies Analysis: Analysis of blue energy technologies (solar cooling, wind energy, seawater heat pumps and marine wave and tidal energy), with particular attention to their impacts on the environment and their interrelation with the different activities and sectors. Besides the technical specifications, the report contains information about existing installation, economic and environmental data as well as a list of available literature for each technology.
- Report RES legislations: A general analysis of the legal framework within the area concerned, which enabled ENERCOAST to define the administrative barriers and the policy strategies that could be implemented for sustainable exploitation of renewable energy sources in the marine-coastal area.
- 7 maps which show the wave potentials, tidal range, sea surface temperature, global horizontal irradiation, wind potential and identified RES installations in the Adriatic and Ionian seas.
- An energetic, economic and environmental analysis of eight case studies (8 infrastructures in municipalities or cities) was achieved.

Synergies with COMPOSE

ENERCOAST will serve COMPOSE project's partners to better understand techno-economic and general aspects of RES planning in coastal areas

References – Useful links

1. ENERCOAST project, *Technical, Environmental and Economic analysis of low and medium size of solar cooling systems, heat pumps with sea water, wind turbines and tidal current technologies*: http://www.medmaritimeprojects.eu/download/ProjectEnercoast/Action_TWO/ENERCOAST_Technology%20data.pdf
2. http://www.medmaritimeprojects.eu/section/enercoast
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4. ENERCOAST project *Elaboration of the case-studies report:* http://www.medmaritimeprojects.eu/download/ProjectEnercoast/ActionFOUR/Final_Report_Case_Studies.pdf
5. ENERCOAST project, *Report on Legislations, status, targets and barriers of Renewable energy utilisation*: http://www.medmaritimeprojects.eu/download/ProjectEnercoast/action_1/ENERCOAST_Final%20report%20legislation%20Enercoast%2012May2015.pdf

2.3.4. SCORE

SCORE	Sustainable Construction in Rural and Fragile Areas for Energy efficiency

Objective

The main objective of SCORE project was to support the implementation of sustainable energy policies in the construction sector in fragile coastal and rural MED areas with exceptional landscape values, exploiting eco-innovative potential, using traditional building elements combined with innovative green technologies. Specifically, SCORE aimed to provide effective strategies and tools to improve policy making and implementation for energy efficiency in the building sector.

Application Area

The project had 10 partners from 7 Mediterranean countries (Italy, France, Spain, Portugal, Greece, Cyprus, Slovenia).

Main results

The main results of SCORE project were

- 24 case studies of eco-innovations for energy efficient building, all enhancing MED identity were considered as the basis for peer-learning. Indicative examples are listed below:
  - Parc eco-habitat - Public Building Green Construction (photovoltaic, biomass/biogas, biocompatible materials, skin solutions), France.
  - The project SMART HOUSE (thermal collector, photovoltaic, natural control strategy, biocompatible materials), Slovenia.
  - Regina dell'Acqua resort – Hotel (biomass/biogas, natural control strategy), Greece.
  - Évora Inov city - Smart Energy Living (efficient management), Portugal.
  - Vaugneray - Eco refurbishment of a monastery into the housing (thermal collector, biomass/biogas, skin solutions), France.
- 19 public awareness raising events; overview of the legal framework in Partner Countries.
- SCORE Matrix, a model for the evaluation of sustainable technologies applied to existing buildings in MED territories. This matrix aimed to allow local planners and building practitioners to use criteria to make energy-efficient choices for new build, conversion and renovation /retrofitting.

Figure 3: Depiction of the evaluation model SCORE Matrix

Synergies with COMPOSE

Its reports will serve as input for criteria on cultural valorization and development potential in the proposed methodology. Specifically, SCORE matrix's guidelines which come from a deep analysis of case studies, norms and regulations, in relation to the local level, will support the activity 3.3 (Preparing individual pilot actions implementation).

References – Useful links

1. http://www.scoremed.eu/
2. SCORE project, *Final Technical Report (Project results)*: http://www.scoremed.eu/documents/report_LR.pdf
3. SCORE project, *Case Studies*: http://www.scoremed.eu/case_studies.php
4. SCORE project, *Matrix*: http://www.scoremed.eu/themes.php
5. SCORE project, *Regulation*: http://www.scoremed.eu/regulations.php
6. http://vimeo.com/album/2245282

2.3.5. ATTRACT SEE

ATTRACT SEE	

Objective

ATTRACT-SEE attempted to develop tools and approaches for policy makers aiming to enhance the quality of decisions concerning territorial cohesion and growth, improve the competence and skills, to monitor and understand interrelated territorial trends and to incorporate the acquired knowledge into an integrated policy development process. The main objective was to establish a monitoring system model to support evidence-based policy development and implementation in partner countries and regions.

Application Area

Wide geographical coverage was ensured by the involvement of 10 partners, an EU Associated Strategic Partner and 8 Observers from 9 countries of South East Europe (Austria, Belgium, Bosnia & Herzegovina, Croatia, Former Yugoslav Republic of Macedonia, Hungary, Italy, Serbia, Slovenia)

Main results

The main results of the ATTRACT-SEE project were:

- The design of common territorial monitoring framework.
- The defining of territorial attractiveness and a set of common indicators at the transnational level.
- Territorial quality and attractiveness report for each involved region/state.
- Common territorial attractiveness indicators data collection.
- Establishment of a permanent policy coordination process.
- Maps of Common territorial attractiveness indicators data at SEE scale.

Synergies with COMPOSE

The "attractiveness" indicators developed within the ATTRACT SEE project will serve as criteria for development modelling, while the common territorial monitoring framework could highlight the issues of importance.

References – Useful links

1. ATTRACT-SEE project, *Assessing Territorial Attractiveness in South East Europe – Brochure*: http://www.attract-see.eu/sites/default/files/Final_brochure_eng.pdf
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4. ATTRACT-SEE project, *Common set of indicators in SEE* : http://www.attract-see.eu/sites/default/files/GI_Indicator_SEE_final_report_28_10_2013.pdf
5. ATTRACT-SEE project, *Methodology for creation of Common indicators for SEE-Slovenia*: http://www.attract-see.eu/sites/default/files/Methodology%20for%20creation%20of%20Common_indicators_for_SEE-Slovenia.pdf
6. ATTRACT-SEE project, *National attractiveness reports* :
   - http://www.attract-see.eu/sites/default/files/National_attractiveness_report_Bosnia%20and%20Herzegovina.pdf
   - http://www.attract-see.eu/sites/default/files/National_attractiveness_report_Croatia.pdf
   - http://www.attract-see.eu/sites/default/files/National_attractiveness_report_Slovenia.pdf
   - http://www.attract-see.eu/sites/default/files/National_attractiveness_report_RER.pdf
7. ATTRACT-SEE project, *Maps of Common territorial attractiveness indicators data at SEE scale* (not online)

2.3.6. LEAP tool

LEAP	

Objective - Description

LEAP, the Long-range Energy Alternatives Planning System, is a widely-used software tool for energy policy analysis and climate change mitigation assessment developed at the Stockholm Environment Institute. It is an integrated, scenario-based modelling tool that can be used to track energy consumption, production and resource extraction in all sectors of an economy. It can be used to account for both energy sector and non-energy sector GHG emissions. In addition to tracking GHGs, LEAP can also analyze emissions of local and regional air pollutants, and short-lived climate pollutants (SLCPs) making it well-suited to studies of the climate co-benefits of local air pollution reduction. Its user interface offers a powerful yet friendly, integrated energy-environment model-building tool, using the accounting framework design approach.

Application Area

LEAP has been adopted by thousands of organizations in more than 190 countries worldwide. Its users include government agencies, academics, non-governmental organizations, consulting companies, and energy utilities. It has been used at many different scales ranging from cities and states to national, regional and global applications.

Main results

LEAP tool itself is the main result.
With the LEAP tool, the user is able to create custom scenarios with different data structures for the specific area of interest by:

- simulating energy demand and energy conversion,
- specifying resources and costs,
- modelling environmental parameters and impacts.

Results can be displayed in almost any unit of measurement and numerous options are available for configuring results, including choice of type of chart (area, bar, line, pie, etc.), chart color, numeric format (absolute values, growth rates, percentage shares), number of decimals displayed in tables, etc.). Alternative policy scenarios can be compared and evaluated by plotting multiple scenarios or by showing the differences in results versus a selected scenario.

Figure 4: Depiction of LEAP scenario analysis

Synergies with COMPOSE

LEAP tool will serve as mid to long term energy planning tool, which can be used to formulate and compare different scenario when preparing Individual pilot actions implementation plans.

References – Useful links

1. Heaps, C.G., 2016. *Long-range Energy Alternatives Planning (LEAP) system.* [Software version: 2017.0.5] Stockholm Environment Institute. Somerville, MA, USA. https://www.energycommunity.org
2. https://www.energycommunity.org/default.asp?action=license
3. LEAP, *Applications*: https://www.energycommunity.org/default.asp?action=applications

2.3.7. QuickScan

QuickScan software	

Objective

The QuickScan software tool is a spatial modelling environment to combine expert knowledge with spatial and statistical data. It is a participatory modelling method that links stakeholder and decision makers knowledge and preferences to available spatial and spatio-statistical data and is designed for group use. Overall, It can be exploited used for desktop research and within the equally named participatory method as discussion supporting tool.

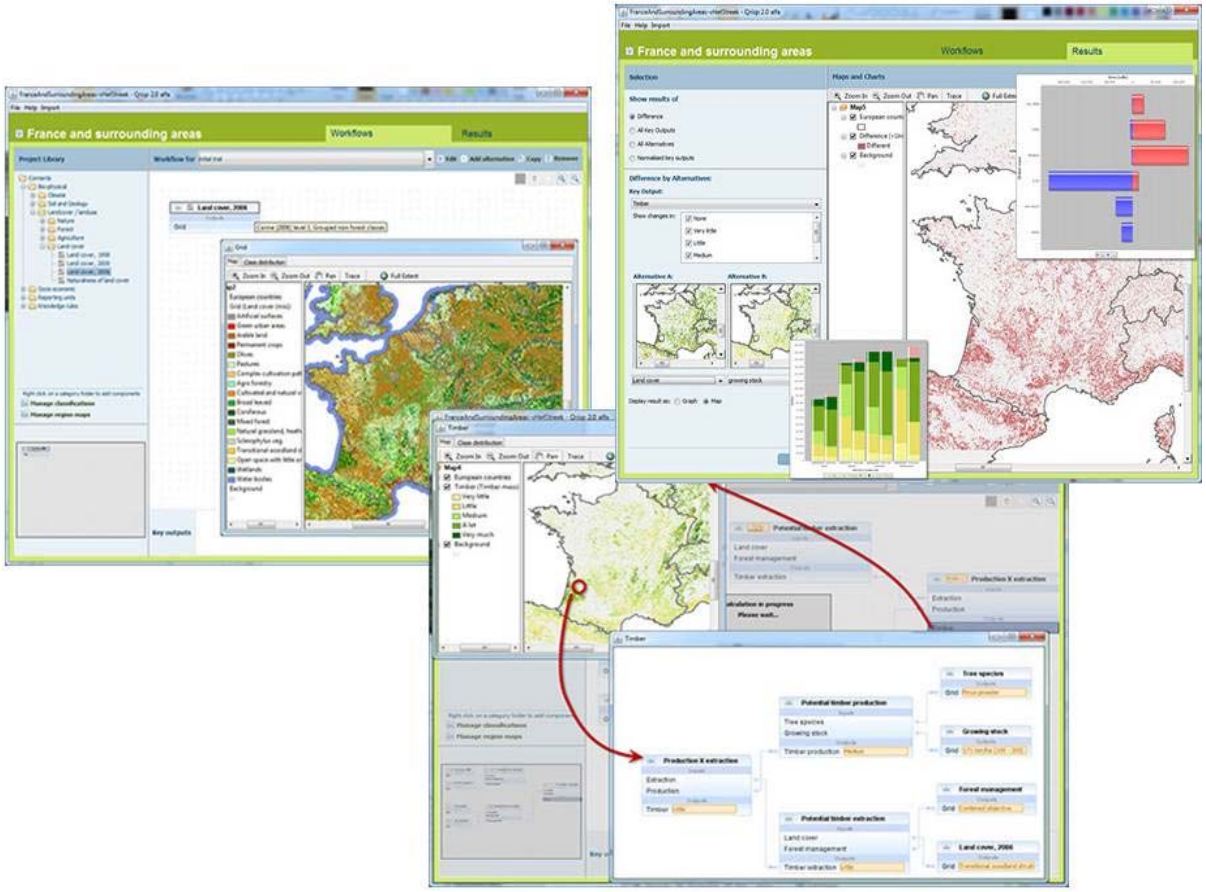

Figure 5: QuickScan software Features

Application Area

QuickScan has been used for a range of environmental assessments at different spatial scales and at different locations across the world, to assess societal and environmental conditions, diagnose patterns and interactions, implement alternative responses and evaluate their impacts.

Main results

The obtained results can be visualized in interactive maps, summary charts and trade-off diagrams. QuickScan can also show how a result is reached by visualising the chain of knowledge and the data, for any specific location in your study area.

Synergies with COMPOSE

In this project, It will serve as a planning tool for the development of scenarios, when preparing Individual pilot actions implementation plans.

References – Useful links

1. http://www.quickscan.pro/features
2. http://www.quickscan.pro/
3. https://scholar.google.com/scholar?q=quickscan+decision+support
4. Braat, L.C., de Groot, R., 2012. *The ecosystem services agenda: bridging the worlds of natural science and economics, conservation and development, and public and private policy*. Ecosyst. Serv. 1 (1), 4–15

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   http://www.sciencedirect.com/science/article/pii/S1462901116304385

2.3.8. RETScreen

RETScreen software	

Objective

The RETScreen Clean Energy Project Analysis Software is a decision support tool developed with the contribution of government, industry, and academia. It was originally developed in 1996 by Natural Resources Canada. The software can be used to evaluate the energy production and savings, costs, emission reductions, financial viability and risk for various types of Renewable-energy and Energy-efficient Technologies (RETs). The software (available in multiple languages) also includes product, project, hydrology and climate databases, a detailed user manual, and a case study based college/university-level training course, including an engineering e-textbook.

RETScreen empowers professionals and decision-makers to rapidly identify, assess and optimize the technical and financial viability of potential clean energy projects. This decision intelligence software platform also allows managers to easily measure and verify the actual performance of their facilities and helps find additional energy savings/production opportunities.

Figure 6: Depiction of RETScreen platform

Application Area

The RETScreen International Clean Energy Project Analysis Software can be used worldwide, since it includes relevant databases.

Main results

RETScreen is widely used to facilitate and implement clean energy projects. Relevant case studies/examples are listed below:

- to retrofit the Empire State Building with energy efficiency measures
- extensively by the Irish wind industry to analyze potential new projects
- by Manitoba Hydro's combined heat & power (bioenergy optimization) program to screen project applications
- in a multi-year assessment and evaluation of photovoltaic performance in Toronto, Canada
- to analyse solar air heating at U.S. Air Force installations
- to identify opportunities for energy efficiency retrofits in various Ontario municipalities.

Synergies with COMPOSE

It will serve as clean energy project analysis tool, when preparing Individual pilot actions implementation plans.

References – Useful links

1. RETScreen International, National Resources Canada, 26th April 2009, http://www.retscreen.net/
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2.3.9. IRENA database

IRENA database - Global Atlas

IRENA International Renewable Energy Agency

Objective

The Global Atlas for Renewable Energy (Global Atlas) is an initiative coordinated by IRENA, aimed at closing the gap between nations having access to the necessary datasets, expertise and financial support to evaluate their national renewable energy potentials, and those countries lacking such elements. It enables the user to overlay information listed in a catalogue of more than 1,000 datasets, and to identify areas of interest for further prospection. IRENA is continuously adding information to the system. Currently, the initiative includes maps on solar, wind, geothermal and bioenergy resources along with one marine energy map.

Users of the Global Atlas can also launch the catalogue directly and search collections of descriptive information (metadata) for every dataset listed in the catalogue. These include the title of the dataset, the source, the contact person for the dataset and any information on data quality. The web map service (WMS) for the dataset is also included for use in third party applications.

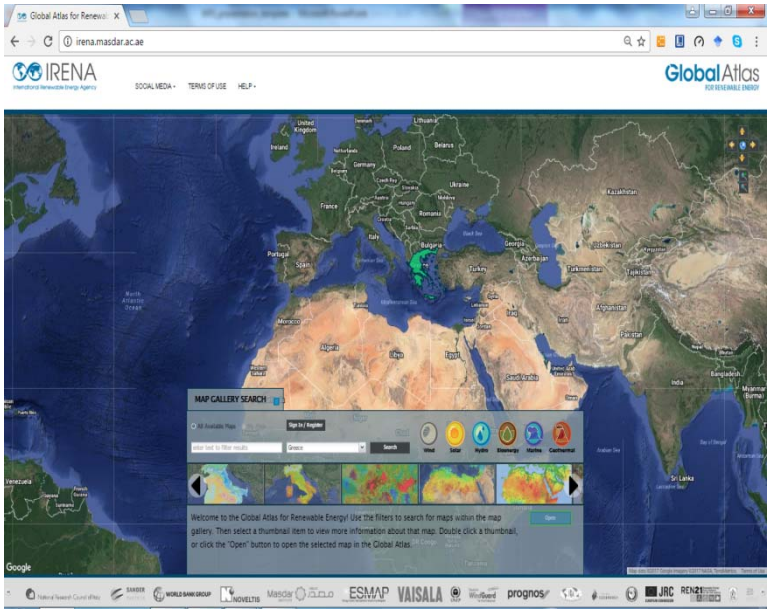


Figure 7: Global Atlas Interface

Application Area

This application is compatible with global use.

Main results

The GIS interface enables users to visualize information on renewable energy resources, and to overlay additional information. These include population density, topography, local infrastructure, land use and protected areas. Also, It is expected to progressively integrate software and tools that will allow advanced energy or economic calculations for assessing the technical and economic potential of renewable energy.

Synergies with COMPOSE

In the framework of this project, there is a need for national level aggregated data on RES potential which is regularly updated. IRENA database will serve as one of the main data sources for RES planning in combination with GEOPORTAL.

References – Useful links

1. http://irena.masdar.ac.ae/
2. http://globalatlas.irena.org/MapHelp.html
3. http://globalatlas.irena.org/Tutorials.aspx
4. http://globalatlas.irena.org/Publication.aspx

2.3.10. Inspire GEOPORTAL

Inspire GEOPORTAL	

Objective

The INSPIRE Directive aims to create a European spatial data infrastructure for the purposes of EU environmental policies and policies or activities which may have an impact on the environment. This will enable the sharing of environmental spatial information among public sector organisations, facilitate public access to spatial information across Europe and assist in policy-making across boundaries.

The INSPIRE directive came into force on 15 May 2007 to be implemented in various stages, with full implementation required by 2019. The INSPIRE geoportal provides the means to search for spatial data sets and spatial data services, and subject to access restrictions, to view spatial data sets from the EU Member States within the framework of the INSPIRE Directive.

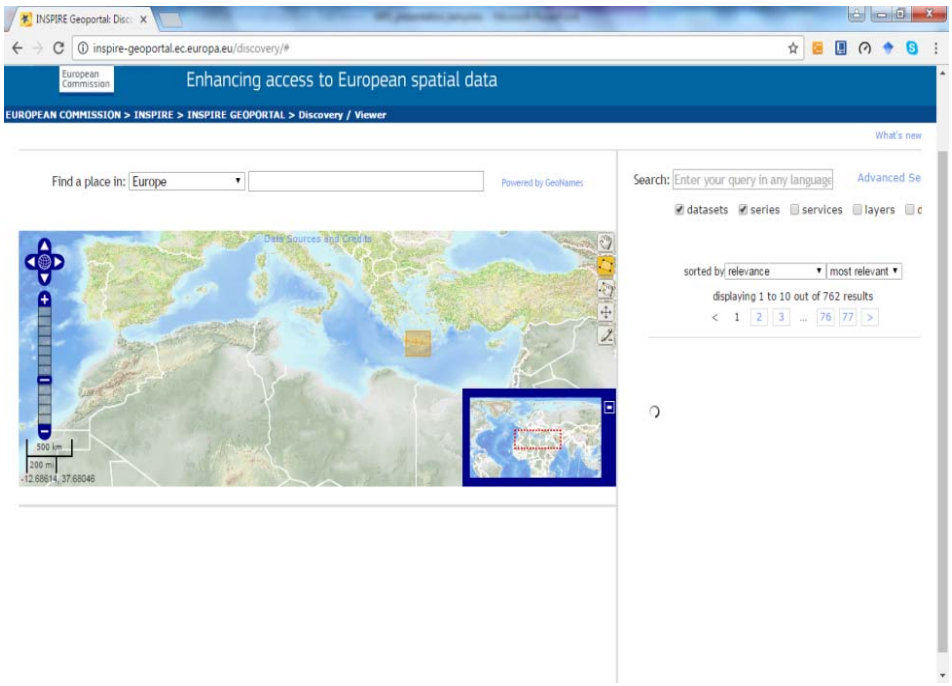


Figure 8: Geoportal user interface

Application Area The Geoportal presents broad geographical coverage of the almost whole MED territory since its data come from all the EU Member States.
Main results The INSPIRE geoportal provides the possibility to search for spatial data sets and spatial data services
Synergies with COMPOSE In the context of COMPOSE project, it gathers GIS data at EU level and it will serve as the second data source (input for various non energy related data) when addressing holistic RES planning.
References – Useful links 1. http://inspire-geoportal.ec.europa.eu/ 2. http://inspire-geoportal.ec.europa.eu/discovery/

2.3.11. European Energy Efficiency Platform (E^3P)

European Energy Efficiency Platform	

Objective

The E^3P is the tool provided by the JRC to facilitate knowledge exchange in the online community of energy efficiency experts. The European Commission has identified the lack of comprehensive and coherent data which hampers the design and the implementation of energy efficiency policies. There is a need for unbiased, comprehensive and robust data, as well as knowledge and information sharing at different levels.

The European Energy Efficiency Platform serves as the Commission online platform as described in the Energy Efficiency Directive Article 25.

Figure 9: E^3P user interface

Application Area

The E^{3}P facilitates the practical implementation of the Energy Efficiency Directive at national, regional and local levels, with data collection and analysis, and supports the exchange of experiences on practices, benchmarking, networking activities, as well as innovative practices.

The E^{3}P addresses the need expressed in the Roadmap for Energy Union strategy for "Data, analysis and intelligence for the Energy Union: initiative pooling and making easily accessible all relevant knowledge in the Commission and the Member States". Supports the entire policy-making process, from development to implementation and monitoring, providing robust, coherent and comprehensive data and evidence-based analysis.

Main results

- The E^{3}P will provide all the basic elements involved in the design, implementation and monitoring of energy efficiency policies and technology deployment with a single entry point for comprehensive, up-to-date, coherent, relevant and usable knowledge. This will help accelerate the transformation of the EU internal market towards higher levels of energy efficiency while delivering on the EU socio-economic and climate goals.
- The E^{3}P will serve as the reference source for EE policy makers and those in charge of the design implementation and monitoring of energy efficiency policy at different levels of governance.
- The E^{3}P will enhance and promote knowledge sharing between the EC and the community of energy efficiency stakeholders, including the industry, standardisation bodies, research organisations, NGOs and consumers' organisations. It will facilitate the exchange of information between engineers, scientists, economists and financial experts

The E^{3}P focuses on six thematic areas: products, buildings, cities and urban areas, industry, energy generation and distribution networks, transport and mobility. The thematic areas are addressed from four perspectives (or cross/thematic areas): policies and targets, financing and economics, technology and standards and behaviours and social.

Synergies with COMPOSE

In the framework of this project, there is a need for data supporting the policy-making process, from development to implementation and monitoring. European Energy Efficiency Platform (E^{3}P) will serve as tool to establish the exchange of energy efficiency knowledge

References – Useful links

1. https://e3p.jrc.ec.europa.eu/

3. COMPOSE COMMON METHODOLOGICAL APPROACH

3.1. Challenges to meet

COMPOSE project is a follow-up project of the GreenPartnerships (GP) project implemented under MED programme period 2007-2014. GP project delivered a Step by Step guide for implementation of local energy action plans. It was developed to foster the implementation of different types of energy plans (SEAP, Local Energy plan and other complementary territorial plans/strategies) and addressed the socio-economic aspects of RES and EE measures implementation with stakeholder participation and social acceptance at its core.

However, the conclusions through testing in GP, indicate that RES and EE measures implementation are many times in conflict with implementation of other sectors development and investment plans and therefore must compete for funding at local, regional and also the national level. Consequently, the common view that most of the implementation problems have to do with the process of planning for RES and EE measures, was ascertained. Taking this into consideration, COMPOSE partnership decided to capitalize on the GP project results and plan for a more ambitious solution: make RES planning and inclusion of EE horizontal principles as basic criteria for development planning at large.

Since the partnership has relevant expertise and knowledge, a strong network will be created to develop an appropriate model, by integrating existing know-how, that will support the implementation of relevant action plans, in and outside the MED area. Thus, COMPOSE will address the challenge of synthesizing existing experience and results of several MED and other EU funded projects and initiatives to provide an holistic approach. Furthermore, upon testing this approach on pilot cases and receiving feedback, the positive/negative elements will be assessed and used for the improvement of a common methodology.

3.2. Overview of the Common Methodology for Demonstration

In the following sections, the main steps of the COMPOSE common methodological approach will be presented, explained and the interactions between different steps will be shown. For each step of the process, the main obstacles to overcome will be highlighted; methods and principles for the preparation of individual pilot actions implementation plans will be presented.

Table 2: Overview of the Common Methodology steps

CHALLENGE	STEPS	RESULTS
	STEP 1 – Choosing a problem	
Choosing a project that contributes most to the local community.	Analyze: energy needs, impact on the local economy, implementation possibilities, impact on the promotion of RES and EE	Identify: energy savings, green business opportunities, local added value chains
	STEP 2 – Creating a Local action group (LAG)	
Identify stakeholders that can contribute to the planning and implementation of the project.	Organize: stakeholders consultations and exchanges, specify projects area of intervention - objectives, empower stakeholders to project implementation	Relevant stakeholders connected into LAG.
	STEP 3 – Local action plan	
Summarizing input from stakeholder participation (LAG) in support of project definition of a local Action Plan	Define, quantify and make projections for: technical potential, socio – economic potential, stakeholders and their responsibilities	Local Action Plan developed and approved by stakeholders.
	STEP 4 – Empower policies & local skills	
Capacity building and awareness raising as a mean to empower local communities to enhance energy efficiency and renewable energy best practices.	Assess Capacity needs and assets in the local level. Form a capacity building plan, Develop/Adopt appropriate tools and materials. Implement targeted capacity building activities.	Capacity building workshops aiming at local stakeholders, municipal employees, technical staff, teachers that were implemented. Training material available for future use is prepared. New knowledge was gained.
	STEP 5 – Creating local partnerships	
Developing a partnership committed to the implementation of the project.	Assign: specific tasks. Confirm: a detailed financial plan. Look for similar initiatives and opportunities.	Implementation partnership formed with clear obligations and responsibilities.
	STEP 6 – Implementation procedures	
Putting ideas into reality by following the necessary procedures	Provide for all necessary support documentation. Plan for sufficient time in the implementation phase, problem-solving procedures.	Implementation plan prepared and beginning of project activities implementation.
	STEP 7 – Monitoring and Evaluation	
Observe and predict possible hindrances in project implementation, improving the implementation process and gain input for future planning.	Implement the monitoring process and use the information as input for other respective steps when planning for another project.	Improvement of the implementation procedure and input for future projects planning.
	STEP 8 – Awareness raising: Promotion, communication and dissemination	
Promote achievements and positive impacts of implemented projects to expert and the wider public.	Develop a comprehensive Communication and awareness raising document and capacity building activities.	Communication and awareness raising document in support of RES and EE project as important drivers of local development.

Important Note: *The sequence of the proposed methodology steps is indicative and highly dependent on the needs/strategy of each project. It might be different from case to case thus has to be adapted from the local development team and harmonised to the local policy/priorities.*

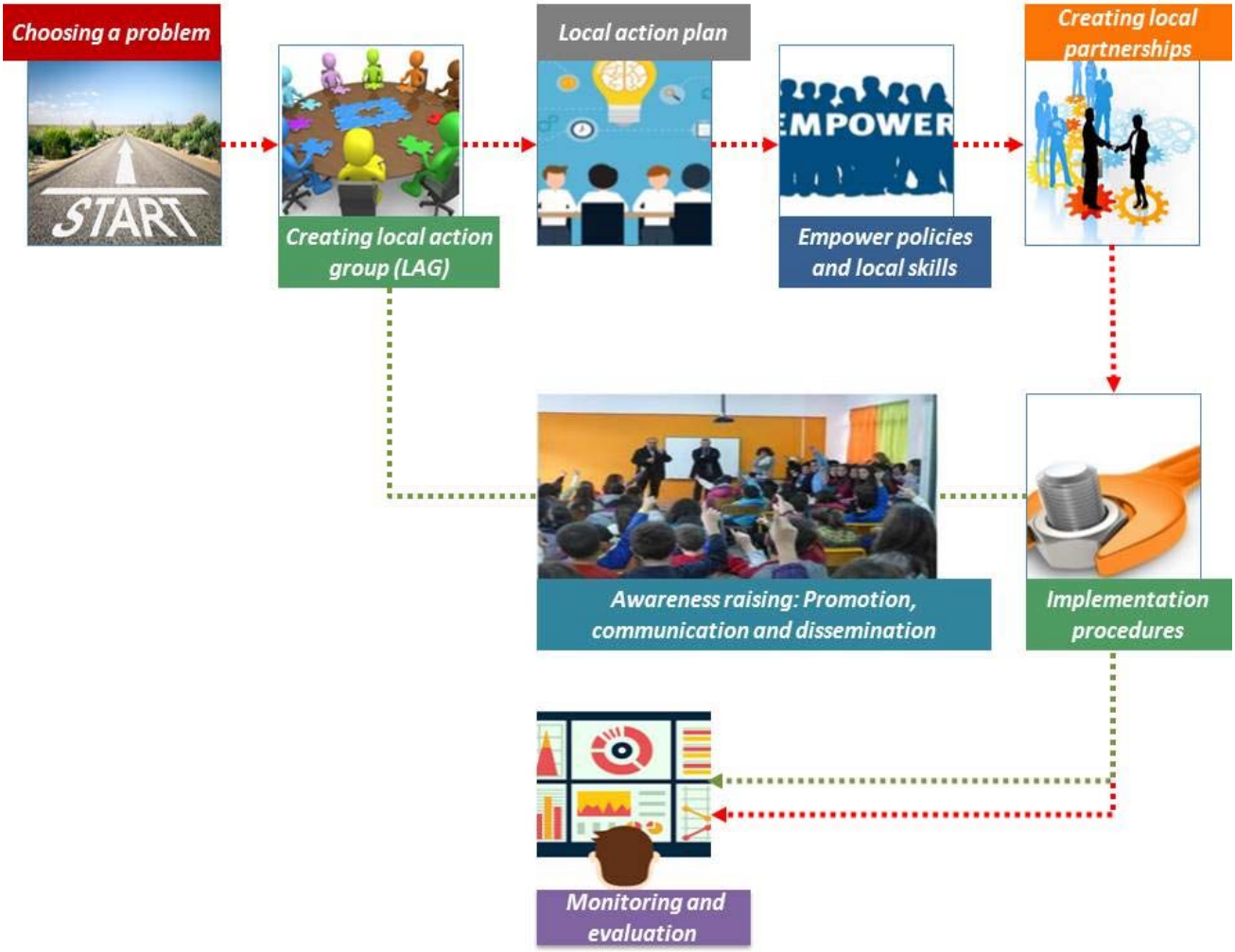


Figure 10: Indicative workflow of methodology

3.3. Set of Common Indicators

In order to measure the pilot actions' progress and impact on communities, to ensure data uniformity and to assist the data collection providing a common understanding of the indicators' definition and monitoring aspects, a set COMPOSE common indicators is to be utilized.

Table 3: List of common indicators

CATEGORY	SUBCATEGORY	INDICATOR	DETERMINATION (MEASUREMENT UNITS)
ENVIRONMENT	Environmental Quality	Greenhouse gas	Tonnes of CO_2-equivalent
		Air pollution	$\mu g/m^3$ (concentration)
		Noise pollution	Number of people in the area exposed to noise levels above L_{den} (55 db)
		Waste to Energy	Mtoe
ENERGY	Natural resources and energy	RES from local resources in the energy mix	%
		Electricity generated from RES	kWh/y or Mtoe/y
		Thermal energy generated from RES	kWh/y or Mtoe/y
		Bioenergy Supply Chain e.g. Biofuels production in L (optional)	L or kWh or Mtoe
		Fossil fuels saved	Mtoe
		Export of energy from local resources	kWh/y or Mtoe/y
	Energy Consumption	Primary energy consumption	kWh/y or Mtoe/y
		Final energy consumption (by sector)	kWh/y or Mtoe/y
		Energy saved through the adoption of EE measures (per segment-optional)	kWh/y or Mtoe/y
ECONOMY	Local Economy and Policies	% of GDP of direct investment in green energy	% of GDP
		RES Investment triggered	Amount in euros
		Contribution to rural economy (optional)	Amount in euros
		Number of new SMEs established	Number of SMEs
		Number of local energy cooperatives	Number of cooperatives
		Number of overnight stays of tourists per capita per year	Number per capita

		Number of European cooperation projects	Number of projects
		Number of new policies at regional level	Number of regulations improving the local context
		Gross Disposable Local Income (optional)	GDP per capita

CATEGORY	SUBCATEGORY	INDICATOR	DETERMINATION (MEASUREMENT UNITS)
SOCIAL CAPITAL	Health	Life expectancy at birth by sex (Europe 2020 indicator)	years
		Exposure to air pollution (population)	Population exposed to levels exceeding WHO guideline value (% of total)
	Quality of life	Gross disposable household income	Amount in euros
		People at risk of poverty or social exclusion or % in risk of poverty	Population (% of total)
		Households at risk of energy poverty or % at risk of energy poverty	Households affected (% of total)
	Knowledge & Innovation	Population aged 25-64 with tertiary education	% of population aged 25-64
		Research & experimental development expenditure as % of GDP	% of GDP
		Number of people reached by the awareness-raising activities	Number of people (or % of local population)
		Number of people trained e.g. number of participants in CBW /study visits/ trainings	Number of people (or % of local population)
	Employment	Employment rate 20-64 years by sex [%] (regional)	% of population (20-64 y.o.)
		Share of employment by sector	% of total employment
		Youth unemployment rate	% of labour force (15-24 y.o.)
		Number of new jobs	Number of jobs
		Number of employed in Green Economy out of the total labour force e.g. Full direct jobs equivalents along the full value supply chain	employment (% of total)
		Share of tourism related employment in total employment	% of total employment
	Population	Population	Number of residents
		% of population in the age range 20-64 years	% of total population
		Ageing index	% (ratio)

3.4. Implementation steps

The methodological approach to reach the objective of a common methodology for demonstration included eight (8) steps, developed complementarily.

3.4.1. Step 1 - Choosing a problem

CHALLENGE	STEPS	RESULTS
Choosing a project that contributes most to the local community.	Analyse: energy needs, impact on the local economy, implementation possibilities, impact on the promotion of RES and EE	Identify: energy savings, green business opportunities, local added value chains

What this step implies?

Being able to implement RES and EE projects in a holistic way, considering not only technological aspects but also their socioeconomic impact in the local environment is a challenge that many local communities are struggling to do and are therefore missing on important development opportunities.

By adopting the bottom up approach stakeholders have a say and co-develop the projects in all of its aspects while preserving the original goal. This adds to the final impact of the project, benefits to stakeholders are more concrete and as a very important fact, by including stakeholders into the identification, development and implementation phase of projects, stakeholders contribute with their know-how, experience, identify themselves with the project more and provide for better acceptance of the project in the local environment. Time and money invested in a bottom up approach repays in form of less opposition in the implementation phase, the better socio-economic impact of the project and also important, builds trust and opens opportunities that cannot be identified without stakeholders participation.

However, this initial step is developed to simplify the identification of suitable RES and EE projects for better impact in local environments. Specifically, when choosing which projects to develop and implement, there are several complementary criteria which should be taken into consideration such as the identification of the existing situation/challenge in the environment and the local community. These criteria should be utilised as a basis for the development planning assessment, to evaluate comparative scenarios and launch local action plans (in line with sustainable development principles).

Which should be the results of the step?

Basic information to identify required intervention	
ENERGY NEEDS	Before planning a rural sustainable energy project, a preliminary analysis of the related energy needs of the local community is of crucial importance. In this way, the selection of the most appropriate, for the local conditions, RES and EE measures will be implemented.
ENVIRONMENTAL BURDEN	In general, the possible adverse effects caused by a development, industrial, or infrastructural project or by the release of a substance in the environment can be considered as an environmental burden. On the other hand, planning projects engaged with positive energy can be considered as an opportunity to minimise an existing environmental burden or to convert it into an environmental gain taking into consideration its possible exploitation, respecting the principles of sustainable development. It is therefore meaningful to identify the current state of the environment in the area under study.
IMPACT ON THE LOCAL ECONOMY	The meaning of local economy development is to enhance the local potentials, e.g. local renewable sources in combination with local technologies and local consumption. Moreover, the criteria of sustainability are fulfilled when the equality of social, economic and ecological factors are met. In this framework, the expected impact on the local economy (i.e. social, economic and ecologic parameters) should be taken into account when planning a new RES or EE project.
IMPLEMENTATION CHALLENGES	There are cases where, EE and RES projects might be more costly than the conventional energy related projects. However, the modern conception of energy projects implementation includes backgrounds for procurements and shaping cooperatives. Within these procurements and tenders, it's possible to build a partnership, which involves both private and public partners. The contracting in general contains provisions about the duration as well as obligations and rights of all involved parties. Therefore, building partnerships, clustering and thematic networking could support significantly to the quality of project implementation.
IMPACT ON THE PROMOTION OF EE AND RES	Through dissemination of EE and RES projects results to the broad public, messages of the importance and potential of EE and RES can more easily reach individuals and also business and other private sector stakeholders. In addition, monitoring activities to follow the progress and change in the community on different levels is considered as important. Consequently, by recognising the suitable target groups, the contribution of RES and EE project in awareness raising will be maximised.

Useful tips for fulfilling the step

- The exploitation of the proposed list of common indicators could support the safe estimation of the existing ''situation'' (Zero point scenario) by defining needs, opportunities, barriers for the development of a local action energy plan. This process clarifies the goals of the methodology, by highlighting the priorities.

Useful tools/ databases/methods that are related to the step

- **GEOPORTAL:** The INSPIRE geoportal provides the means to search for spatial data sets and spatial data services, and subject to access restrictions, to view spatial data sets from the EU Member States within the framework of the INSPIRE Directive.

  http://inspire-geoportal.ec.europa.eu/discovery/

- **IRENA DATABASE:** It will support the need for national level aggregated data on RES potential which is regularly updated. IRENA database will serve as one of the main data sources for RES planning in combination with GEOPORTAL

  http://irena.masdar.ac.ae/

- **EUROSTAT:** The main role of Eurostat is to process and publish comparable statistical information at European level. In this project, Eurostat could contribute as input for various non energy related data.

  http://ec.europa.eu/eurostat/data/database

- **OTHER SOURCES:** The data to be used for the analysis can also be obtained from other sources e.g.: available information of different energy agencies (regional, national, European), a database of research institutes, results obtained within previous EU projects in similar topics.

3.4.2. Step 2 - Creating local action group (LAG)

CHALLENGE	STEPS	RESULTS
Identify stakeholders that can contribute to the planning and implementation of the project.	Organize: stakeholders consultations and exchanges, specify projects area of intervention - objectives, empower stakeholders to project implementation	Relevant stakeholders connected into LAG.

What this step implies?

The different nature of each development project of RES or EE, its requirements, level of impact to the different stakeholder clusters should be taken into account when selecting the appropriate LAG members. It is therefore crucial for citizens and stakeholders' groups to be fully involved from the beginning. All key players should share a common vision and find ways of combining skills and other resources in order to maximize their impact on the delivery of positive energy action plan's goals. The participation of all interested parties in the decision-making process can reduce conflicts and lead to outcomes that better reflect the citizens' needs and prospects.

Consequently, this step provides recommendations on forming a LAG and engaging the most appropriate actors. Firstly, the main stakeholders should be identified:

- Whose interests are affected by the action?
- Whose activities affect the action?
- Who possess/control information, resources and expertise needed for strategy formulation and implementation?
- Whose participation/involvement is needed for successful implementation?

Also, it is of specific significance to clarify the activities of the LAG members. These activities might involve:

- Identification of energy plan priorities and development of projects to match the local needs
- Contribution to the preparation of local step-by-step plans
- Preparation of technical solutions for the realization of the pilots and support their implementation
- Support the capacity building activities in municipal level
- Identification of efficient ways/tools to increase public awareness and disseminate the projects' outcomes (local team of volunteers?)
- Monitoring and assessment of the progress of the pilots; the capitalization of project results
- Contribution to the improvement of local energy strategy.

Which should be the results of the step?

The main result should be the formation of a LAG, which consists of key stakeholders. Their involvement from the initial planning phase to the strategic decisions and the development process will be a "driving force" for the successful RES and EE project implementation. It should be noted that actual participation implies a dynamic, interactive process. To this purpose, building trust and confidence that all views will be taken into account during any energy project development is a critical issue.

Useful tips for fulfilling the step

Case studies/good examples of RES development planning from past projects and initiatives should be utilised to encourage stakeholders to RES and EE projects' implementation.

Useful tools/ databases/methods that are related to the step

- **GreenPartnerships** project, which details the information about creating local action group (LAG) and provides the experience of implementing RES and EE measures at regional/local level.
  http://www.greenpartnerships.eu/wp/wp-content/uploads/GPs_FP_Complete_FINAL.pdf
  http://www.greenpartnerships.eu/wp/wp-content/uploads/GPs_SBSguide_web.pdf

- **SCORE project**, which highlights eco-innovative methods for RES and EE measures implementation in cultural heritage buildings.
  http://www.scoremed.eu/themes.php
  http://www.scoremed.eu/theme_details.php?ID=11&PART=1&F=2

- **ENESCAPES** project, its shared assessment methodology of landscapes "historic", "social" and "environmental" value within the process of introduction of RES systems into MED territories and landscapes was tested in selected case studies.
  http://www.enerscapes.eu/images/downloads/Enerscapes_FinalPublication_WEB.pdf
  http://www.enerscapes.eu/index.php?option=com_content&view=article&id=77%3Acommunication-material&catid=40%3Adownloads&Itemid=83&lang=en

- **ENERCOAST** project, which presents the legislation, status, targets and barriers of renewable energy utilisation in the Adriatic – Ionian area.
  http://www.medmaritimeprojects.eu/download/ProjectEnercoast/ActionFOUR/Final_Report_Case_Studies.pdf
  http://www.medmaritimeprojects.eu/download/ProjectEnercoast/action_1/ENERCOAST_Final%20report%20legislation%20Enercoast%2012May2015.pdf

Table 4: Indicative stakeholders to be engaged in LAGs

Actors to be engaged through the decision-making and implementation processes	
Key Actors to be engaged to the LAG activities (1st level involvement)	- Local/regional policy makers – Municipalities - Municipal departments and related companies (municipal energy utilities, transport) - Technology/product providers - Financial partners such as banks, private funds, ESCOs, charities - Institutional stakeholders like chambers of commerce, chambers of architects and engineers - Energy agencies - Knowledgeable persons (experts, consultants, etc.) - Representative from the end users group which will be directly affected by the planned RES development - Where relevant, representatives of national/regional administrations and/or neighbouring municipalities, to ensure coordination and consistency with plans/actions that take place at other levels of decision
Actors to be considered depending on the specific fields of action:	
Actors with whom to work out RES plans	- Electricity Regulators and Grid operators - Utilities - RES technology suppliers - Associations of RES installers - Research institutions; Knowledgeable persons (e.g. experts, consultants) - Associations/clusters of building/land owners; Land owners (i.e. public, church, etc.) - Agricultural organizations; - Institutional stakeholders like association of engineers, installers - ESCOs
Actors with whom to work out Energy Efficiency plans	**In the building sector:** - Building companies, developers - Architects and engineers - Technology/product providers - ESCOs (Energy Services Companies) - Associations of installers - Association of building owners; clusters of business sectors - Research institutes, experts in EE applications; **In the industry sector:** - Utilities incl. district heating companies - Manufacturers - ESCOs

	In the transport sector (if applicable to GP pilot projects): - Mobility planners - Transport/mobility players: private/public transport companies - Cycling organizations - Freight transporters/organizations - Vehicle manufacturers - Energy suppliers
Actors important to be informed and provide their feedback and consent :	
End Users and Local Communities	- Citizens/consumers associations; Citizens Volunteers' groups - NGOs and other civil society representatives - Building managers; Building employees; building users - Local and regional energy agencies - Chambers of Commerce, SMEs associations - School Communities (teachers, pupils) - Media Representatives - Representatives of tourism sector (where this sector is of key importance)

3.4.2.1. Engaging stakeholder – in a nutshell

What are essential preconditions before we engage with stakeholders?

This chapter gives a short insight into most important aspects of stakeholder engagement to highlight the added value and support you can expect if implemented properly.

This is not an exhaustive guide, it is highly recommended that you look for professional support within your organisation or outsource experts, who are professionals in the field of stakeholder engagement, to make the most of the engagement process.

Essential preconditions for stakeholder engagement

Stakeholder participation or stakeholder engagement is a process of joint development on a proposed topic/issue, and should only be conducted if the following criteria are fulfilled on the proposing side:

1. Willingness to adapt; proposing side should not, at any moment, point blank refuse to consider different vies, proposals or solutions. This is not only against the overall objective of stakeholder engagement, which is, build on and with their knowledge and experience, but is also alienating stakeholders and growing the potential for opposition,

Stakeholder engagement is an ethical and pragmatic approach to gain wider knowledge, better local insight and open novel opportunities that would otherwise be outside your reach.

2. Willingness to explain; proposing side should always be able to reply with arguments in support or rejection of any opposing or alternative proposal. If time does not allow for an answer to be delivered immediately, proposing side should deliver the answer to all in reasonable time,

3. Willingness to cooperate; stakeholder participation should not be a one-time event. Even-though most of the work maybe could be done in a few meetings, make sure you follow up, using at least some widely accessible electronic media.

4. Willingness to persist/follow up; initial failures can happen and maybe first engagement/workshop will not bring any useful input, maybe it will even lead to rejection of the proposal. Do not judge by the first event, rethink your position and position proposed and try again. Be aware that, especially if there is a more sensitive topic you are approaching, people do not always “show their cards” immediately, sometimes you will be tested for endurance.

If implemented properly, you should expect smoother implementation, increase your credibility and most importantly build partnership connections with stakeholders in your environment for future projects. Time invested in stakeholder engagement is time potentially saved during implementation,

which is essential, since setbacks during the implementation, when you already invested your work and investment costs, are costlier then time invested in stakeholder engagement.

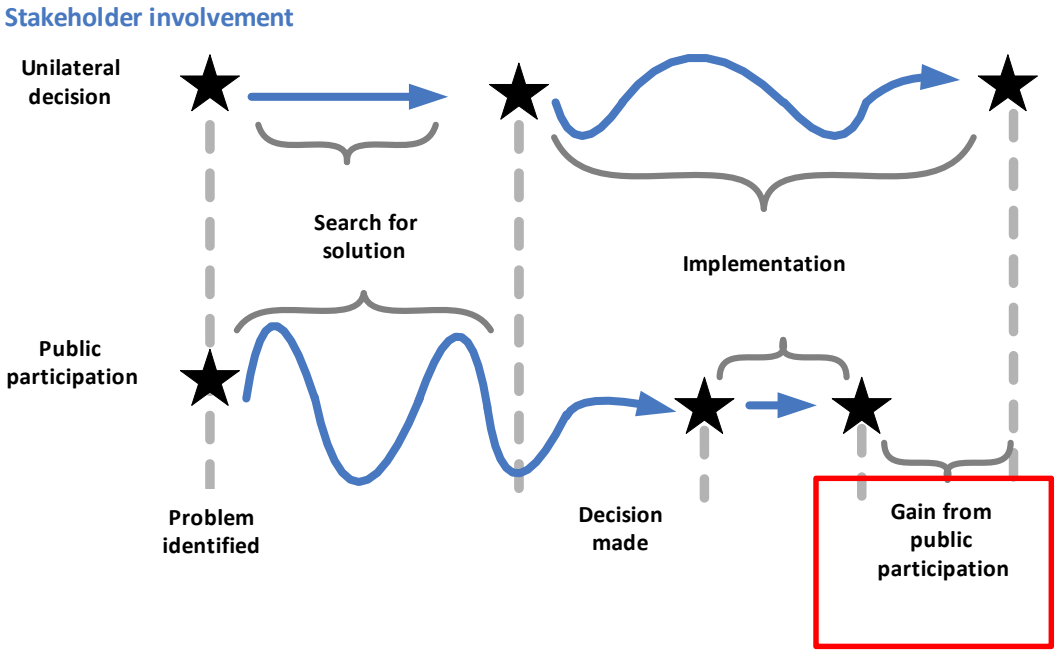


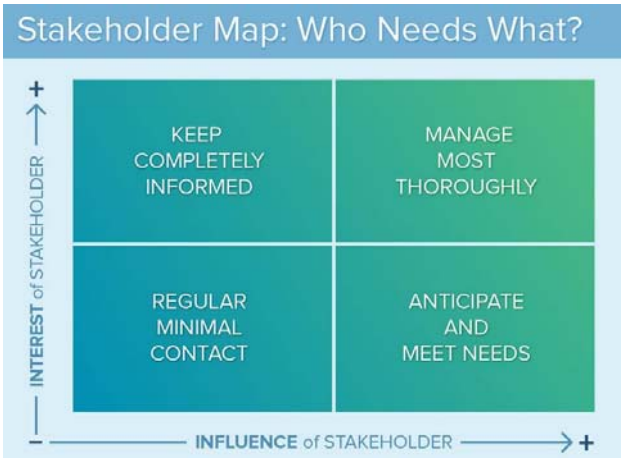
Figure 11: Difference between the traditional consultation and stakeholder involvement [Source: Creighton, 2005]

What are the next steps?

In order to manage your engagement properly you should always keep in mind that not all stakeholders or not interested in the topic in the same way. To making sure your events will not end up with no conclusions and no meaningful results, you should:

1. Analyse your stakeholders; consider who are those who you need most in order to make sure your proposal with be implemented with as little obstacles as possible. Look for supporters, either at decision making level, business level, community level, opinions leaders, stakeholders who are most likely to embrace your proposal.

2. Look through their glasses and consider how you structure your messages; ask yourselves, what is the added value for them? Consider the interest they might have (person, business) and influence (formal and non-formal as opinion makers). Make sure you shape the message properly, use proper language for decision makers, business, representatives of local communities, experts, general public. Make sure you are able to explain why they should support your proposal.



3. Set up for your core team; your core team is not the same as the team implementing daily activities in support of project implementation. Core team is a group, that, ideally, would consist of all the Stakeholder groups representatives. Approach first individually most important/influential/potentially supportive representative of every group to get better insight, before going public.

Going public – organizing an event

Organisation of an event is a combination of administrative organisational activities and well prepared professional materials and messages. Look for support for organisational activities, where at least the following conditions should be met:

1. Well promoted event through media that addresses all stakeholder groups identified in previous steps; Try and be persona with the invitation, shape the message and invitation in understandable way, preferably invitation should be written by a non-expert to make it understandable for all. Be short, try to follow the principle of writing that flows from; addressing the issue/state of art to desired results, explaining proposed actions and highlighting added value of the proposed action,

2. Well organized event; make sure that you deliver personal information package, collect contacts, prepare presentations that are understandable and plan for time for interaction and interactive work,

3. Who should be the moderator or facilitator of the event; try to engage a person that is knowledgeable on the subject but is also broad minded and is able to phrase messages in understandable way. Somebody who has experience in moderation, is able to "break the silence" with questions and make sure there are conclusions are agreed upon,

4. Plan for sufficient time for participants to make their voice heard; use interactive techniques and above all make sure that you present them with the outcomes of the event and follow up with information for another event or make sure to keep in touch and report on the progress if it is a one-time event. One of easiest and most effective method is the so-called World café method (follow the link, for a comprehensive guide on implementation of the technique https://www.youtube.com/watch?v=YrTKD8NpApY). There are several other methods you can explore or ask for advice local professionals, who will be happy to provide proposal on engagement,

If you want to make wider impact and gain from the events you are organizing – you should actively engage key stakeholders and public. Do not just give information, ask for information, make participants feel that they matter to you and that they are important for the success of the proposal.

5. Ask for feedback; it is especially good to enable participants to comment on the event live, try free online tool for live engagement https://www.mentimeter.com, which saves you time with paper work and enables fast review of responses. For those who are not able to participate via this channel, make sure your provide paper version of either evaluation questionnaire or at least place where they can leave their written replies.

3.4.3. Step 3 - Local action plan

CHALLENGE	STEPS	RESULTS
Summarizing input from stakeholder participation (LAG) in support of project definition into a local Action Plan	Define, quantify and make projections for: technical potential, socio – economic potential, stakeholders and their responsibilities	Local Action Plan developed and approved by stakeholders.

What this step implies?

A local energy action plan translates long term strategy into actions. It can be a useful tool for rural areas, cities and regions to plan, implement, monitor and evaluate climate and energy policies; With a well-balanced energy action plan, local communities may benefit from a higher quality of life with increased opportunities for all citizens, reasonable use of natural resources, increased environmental protection and social cohesion and economic prosperity with respect to the needs of other communities in the wider region.

Since, a large number of possible solutions may be identified for developing a RES and EE project, the decision makers should be informed about the key parameters of alternative scenarios, while the potential of application of different RES and EE systems can be further assessed at different levels. To this aim, the direct comparison of different scenarios with the zero scenario (existing situation) is essential. The identification of the different solution potential may include:

- **Technical potential:** The theoretical maximum level of potential energy savings or clean energy production assuming immediate implementation of all feasible energy efficiency measures or RES technologies regardless of cost-effectiveness.
- **Economic potential:** A subset of technical potential which assumes immediate implementation of all cost-effective RES applications or energy efficiency measures (where more measures or technologies are appropriate for an application, the most cost-effective one is selected).
- **Achievable potential:** The level of savings or energy generation that could realistically be achieved by an energy efficiency or a RES development project within a specified time horizon, within a specified set of limiting factors - focused on keeping balanced the three main pillars of sustainability: social, environmental, and economic aspects - such as cost-effectiveness, capital constraints, the useful lifetime of existing installed equipment, etc., quality of life, quality of local environment,
- **Circular economy potential**: The level of energy savings or energy production from RES, which assumes the adoption of Energy Efficiency measures in line with eco-design aspects (i.e. the possibility to repair or recycle a product and reuse its components and materials) and sets as priority the recovery of energy from local waste (e.g. Food waste, etc.)

The achievable potential is the most useful for goal-setting since it takes cost-effectiveness as well as key time-related and technical-related constraints into account.

Plans to maximise the share of RES should take into account site-specific characteristics such as the kind of energy infrastructure, energy consumption per area unit, grid interconnection and grid robustness, ampacities and constraints of the existing renewable technologies in combination with the main features of renewable sources.

To facilitate the selection of most appropriate measures, the local authority may rank them based on a set of criteria (i.e. investment required, energy savings, employment benefits, improved air quality, relevance to the overall objectives of the local authority, political and social acceptability) ; each criterion could weight differently. To set the priorities, potential risks associated with the measures' implementation should be taken into account and decisions should be based on relevant expert and stakeholders' opinion.

Which should be the results of the step?

A well-defined and realistic; with measurable, achievable and quantified targets; local energy action plan should be the main result of this step, which details its socio-economic and environmental foreseen impacts.

Useful tips for fulfilling the step

A crucial issue to overcome is the determination of a simple and meaningful way to formulate in practice a LSEAP; To this purpose a pragmatic and goal oriented approach is presented in figure 9, describing how the existing knowledge from past projects and initiatives as well as relevant databases, will be used as input in order to introduce and perform Scenario Analysis for each Pilot Area. The direct result of this process will be an appropriate action plan for implementation. It should be noted that software such as LEAP, QuickScan and RETScreen could assist the analysis of alternatives scenarios.

In addition, it should be highlighted that the alternatives considered at this stage of plan-making should be strategic. Thus, each partner will be asked to develop at least three scenarios under the same initial conditions and underlying objectives, which are:

- Technical potential
- Economic potential
- Achievable potential
- **Circular economy potential**

Figure 12: Main Steps in the Sustainable Energy Action

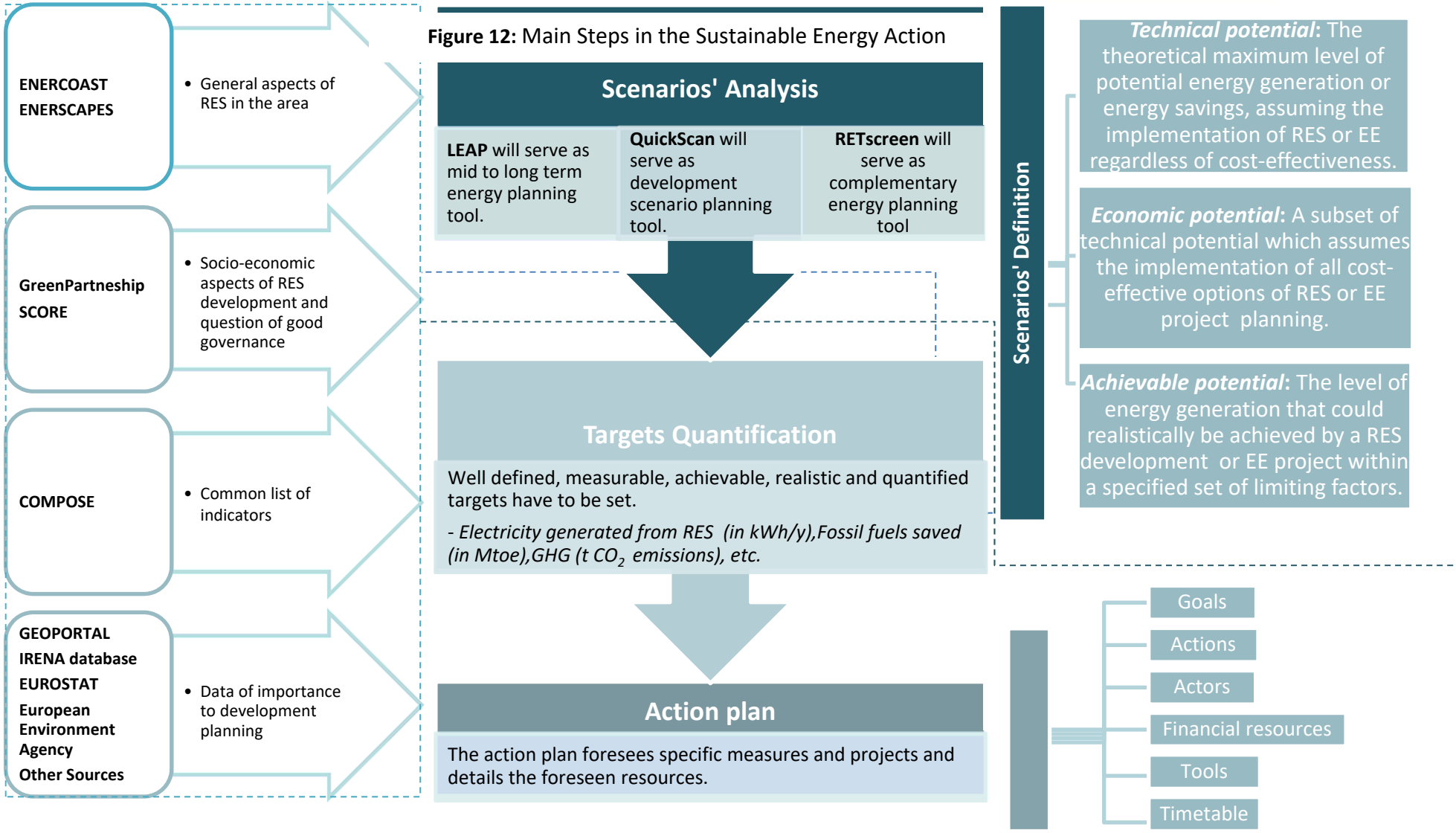


Figure 9: Main Steps in the Sustainable Energy Action planning

Useful tools/ databases/methods that are related to the step

- **ENERSCAPES**
  http://www.enerscapes.eu/images/downloads/Enerscapes_FinalGuidelines.pdf
  http://www.enerscapes.eu/images/downloads/Enerscapes_FinalGuidelinesEL.pdf
  http://www.enerscapes.eu/images/downloads/Enerscapes_FinalPublication_WEB.pdf
  http://www.enerscapes.eu/index.php?option=com_content&view=article&id=82&Itemid=77&lang=en

- **ENERCOAST**
  http://www.medmaritimeprojects.eu/download/ProjectEnercoast/Action_TWO/ENERCOAST_Technology%20data.pdf
  http://www.medmaritimeprojects.eu/download/ProjectEnercoast/action_1/ENERCOAST_Final%20report%20legislation%20Enercoast%2012May2015.pdf
  http://www.medmaritimeprojects.eu/download/ProjectEnercoast/ActionFOUR/Final_Report_Case_Studies.pdf

- **GreenPartnerships**
  http://www.greenpartnerships.eu/wp/2015/04/14/expert-working-groups/
  http://www.greenpartnerships.eu/wp/wp-content/uploads/GPs_FP_Complete_FINAL.pdf

- **SCORE**
  http://www.scoremed.eu/documents/report_LR.pdf
  http://www.scoremed.eu/themes.php

- **ATTRACT SEE**
  http://www.attract-see.eu/sites/default/files/GI_Indicator_SEE_final_report_28_10_2013.pdf

- **LEAP**
  Heaps, C.G., 2016. Long-range Energy Alternatives Planning (LEAP) system. [Software version: 2017.0.5] Stockholm Environment Institute. Somerville, MA, USA.
  https://www.energycommunity.org
  https://www.energycommunity.org/default.asp?action=license
  https://www.energycommunity.org/default.asp?action=applications

- **RETScreen**

RETScreen International, National Resources Canada, 26th April 2009, http://www.retscreen.net/

Himri, Y., Boudghene Stambouli, A. & Draoui, B., Prospects of wind farm development in Algeria.Desalination, 239(1-3), pp. 130-138, 2009.

Houri, A., Solar water heating in Lebanon: Current status and future prospects. Renewable Energy, 31(5), pp. 663-675, 2006.

El-Shimy, M., Viability analysis of PV power plants in Egypt. Renewable Energy, 34(10), pp. 2187-2196, 2009.

Bakos, G. C., Soursos, M. & Tsagas, N. F., Technoeconomic assessment of a building-integrated PV system for electrical energy saving in residential sector. Energy and Buildings, 35(8), pp. 757-762, 2003.

Kikuchi, E., Bristow, D. & Kennedy, C. A., Evaluation of region-specific residential energy systems for GHG reductions: Case studies in Canadian cities. Energy Policy, 37(4), pp. 1257-1266, 2009.

Leng, G. J., Monarque, A., Graham, S., Higgins, S. & Cleghorn, H. RETScreen International: Results and Impacts 1996-2012. Minister of Natural Resources Canada, 2004, www.retscreen.net/ang/impact.php

- **QuickScan**

http://www.quickscan.pro/features
http://www.quickscan.pro/
https://scholar.google.com/scholar?q=quickscan+decision+support

Braat, L.C., de Groot, R., 2012. The ecosystem services agenda: bridging the worlds of natural science and economics, conservation and development, and public and private policy. Ecosyst. Serv. 1 (1), 4–15
http://www.sciencedirect.com/science/article/pii/S2212041612000162

Pérez-Soba, M., Braat, L., Verweij, P., van Eupen, M., Cormont, A., Wiebel B., and Zulian, G. 2015. Training member states on ecosystem services mapping through hands-on workshops. Final report to DG ENVIRONMENT's CONTRACT N (ENV.B.2/ SER/2014/0045r. Alterra Wageningen UR, JRC and ETHZ (in preparation).

Verweij, P., Janssen, S., Braat, L., van Eupen, M., Perez Soba, M., Winograd, M., de Winter, W. and Cormont, A., 2016, QUICKScan as a quick and participatory methodology for problem identification and scoping in policy processes, Environmental Science & Policy, 66, 47-61
http://www.sciencedirect.com/science/article/pii/S1462901116304385

- **INSPIRE geoportal**
  http://inspire-geoportal.ec.europa.eu/
  http://inspire-geoportal.ec.europa.eu/discovery/

- **IRENA Database-Global Atlas**
  http://irena.masdar.ac.ae/
  http://globalatlas.irena.org/MapHelp.html
  http://globalatlas.irena.org/Tutorials.aspx
  http://globalatlas.irena.org/Publication.aspx

- **Eurostat**

3.4.4. Step 4 - Empower policies & local skills

CHALLENGE	STEPS	RESULTS
Capacity building and awareness raising as a mean to empower local communities to enhance energy efficiency and renewable energy best practices.	Assess Capacity needs and assets in local level. Form a capacity building plan, Develop/Adopt appropriate tools and materials. Implement targeted capacity building activities.	Implementation of capacity building workshops aiming at local stakeholders, municipal employees, technical staff, teachers. Training material available for future use. New knowledge gained.

What this step implies?

Lack of knowledge and capacity is the main obstacle for the local authorities to efficiently implement a local energy action plan. Capacity building and awareness-raising activities empower local communities to improve energy efficiency and renewable energy best practices.

Activities to build awareness, improve understanding, raise interest and build capacity will enable local authorities (decision makers, technical staff) to face the challenge of setting in practice the sustainable energy strategies focusing on the need to establish a paradigm shift and will support them with the information they need to determine when taking decisions, and when developing/ implementing/ monitoring energy efficiency interventions and the local energy action plan's implementation

Moreover, education and awareness-raising activities for households and public employees play a main role in understanding why it is necessary to act locally and what can be done by individuals in home. Municipalities or regional authorities can take a leading role, putting in practice a communication strategy on sustainable energy use, including practical advice on how energy savings can be achieved in daily life.

Consequently, this step sets the basic recommendations for the development of training and capacity building workshops.

Which should be the results of the step?

Implementation of capacity building workshops aiming at Regional and local policy makers, municipal technical staff, energy/ maintenance manager of municipalities. Preparation of training material available for future use. New knowledge gained, improved competence and capacity to decision makers and technical actors

Useful tips for fulfilling the step

Course Contents	Appropriate syllabus including indicatively relevant terminology, alternative technologies/solutions, advantages and disadvantages, technical considerations/ barriers, economical/ environmental aspects, case studies, decision making process, resources/useful links.
Training materials	E.g. presentations (ppt), training material (pdf file), extended list of further resources and links for case studies/good examples from other local authorities in EU.
Training approach, methods and tools	"Classroom" presentations with experienced trainer, analysis of examples, field study visits, appropriate visual materials, discussion/discussion groups
Trainers profile and training	expert(s) on the specified topic, more than 3 years experience in the field (either as a trainer or as a technician)
Evaluation – Reporting	participants' opinion is important; an evaluation form can be distributed after the end of each workshop. Filled questionnaires can be gathered and analysed to provide useful feedback for the improvement of future workshops

The training approach can include classroom instruction and presentation of case studies and practical examples with an overall goal of providing new ideas and technical knowledge. Trainers should pay attention to the level of understanding of the participants and resiliently adapt to it accordingly. The following points should be taken into consideration for effective lecturing:

- Exchanging with the participants to confirm understanding;
- Practical examples of different technologies and systems to deepen their knowledge;
- Resources for further knowledge;
- Brainstorming session;
- Discussions among participants.

Interaction during a training workshop, which incorporates individual experiences, is essential. Getting everyone involved is a key to a successful workshop.

- Create a list of main points to discuss, and break down into critical details that you want to communicate to your audience.
- Facilitate the discussion between the participants. Mix up the different profiles; by encouraging them to interact they can learn to look at things from different perspectives.

- Record the ideas and considerations expressed by them and let the group to exchange, evaluate and prioritise them.

Such experiential learning gives the participants an opportunity to develop their skills and supports them to decision making. Possible arguments could be:

- Learn pros and cons of potential solutions when initiating specific actions for a "greener" city; identify critical steps on decision making to set up the groundwork for sustainable solutions
- energy local projects, which will also prove to be useful, for re-election purposes, during the next political campaign (this applies to the municipality members)
- Gain technical knowledge on how to apply successful practices/technologies to reduce the CO_2 emissions, energy footprint and operation cost of public buildings
- Gain knowledge on how to improve access to structural funds for sustainable energy projects and investments in the community
- Get informed on the existing legislation and funding opportunities
- Learn from best practices, that other local authorities have implemented.

Useful tools/ databases/methods that are related to the step

- **ENERSCAPES**
  http://www.enerscapes.eu/index.php?option=com_content&view=article&id=82&Itemid=77&lang=en
  http://www.enerscapes.eu/index.php?option=com_content&view=article&id=77&Itemid=83&lang=en

- **GreenPartnership**
  http://www.greenpartnerships.eu/
  http://www.greenpartnerships.eu/wp/2015/04/14/expert-working-groups/
  http://www.greenpartnerships.eu/wp/wp-content/uploads/GPs_FP_Complete_FINAL.pdf

- **SCORE**
  http://www.scoremed.eu/documents/report_LR.pdf

- **E³P**
  https://e3p.jrc.ec.europa.eu/

3.4.5. Step 5 - Creating local partnerships

CHALLENGE	STEPS	RESULTS
Developing a partnership committed to the implementation of the project.	Assign: specific tasks. Confirm: a detailed financial plan. Look for similar initiatives and opportunities.	Implementation partnership formed with clear obligations and responsibilities.

What this step implies?

Local partnership is defined as a non-formal or formal partnership between public sector, private investors and users of single investment or implemented measures. Local partnerships concretize the EE or RES measures, developed by the local action group, in a form of an implementation partnership or business initiative, if the nature of the project allows it.

The construction of the partnerships depends on the topic, which is the subject of the Local Energy Plan and in general it consists of and is in relation with:

- Members of the Local action group;
- End users who can implement some soft measures (e.g. energy efficiency measures in the office, school, recycling, energy saving in households etc.) and internalize them;
- Investors as a private partner or third party of the implementation (e.g. forms of energy contracting, financing partner);
- Public as an observer and/or end user is the most important partner for the know- how transfer between communities and regions and has a crucial impact to the public opinion.

Local partnerships are based on the formulated local action groups (see chapter 2), which discuss about the possible solutions and try to remove obstacles for faster implementation of the project. Local partnerships invite to the project third parties and end users to discuss about the technical and other implementation possibilities.

Partnerships can be formed on several different levels, depending on the scale and complexity of the project:

- Partnerships in local neighbourhoods
- Partnerships in the larger area, such as a city
- Partnerships at the regional or state level.

An effective partnership could include different parties such as technicians, engineers, public sector and a (private) company, which is able to implement the project.

The structure depends on the goals and amount of work, which has to be done in the common project.

However, an alternative model that could be considered is the Active ownership through engagement. This model gives people the opportunity to take ownership of renewable power and use it to make positive change in their communities. Specifically, the main objective of active ownership is five-fold:

- To develop community-owned renewable energy projects in local level, which creates a local green energy supply and improves energy security and resilience.
- To raise awareness of and promote practical, local, low carbon solutions that address the global challenges of our reliance on fossil fuels and the associated climate impact.
- To facilitate community ownership and active participation that engages and strengthens the local community and its economy through volunteering, investment opportunities and becoming energy producers.
- To provide finance for re-investment in renewable energy and energy efficiency projects that contributes to addressing fuel poverty.
- To create a community fund for local community projects.

Which should be the results of the step?

Implementation partnership will be formed with clear obligations and responsibilities.

Useful tips for fulfilling the step

- An effective partnership could include different parties such as technicians, engineers, public sector and a (private) company, which is able to implement the project. The structure depends on the goals and amount of work, which has to be done in the common project.
- A sign of a well implemented process in Steps 1 to 4 can also be presented by a business plan that the partnership adopts in order to better implement the project. If Steps 1 to 4 have been implemented properly the Local Partnership in question will have clear goals set, partners will understand their roles, expected input and expected results from the project.
- All important tasks in the project should be agreed and confirmed by the mid or long term agreement between the coordinator (lead partner) and contractors. The contractors should be chosen by the official procurement which enable transparently course of the tasks.

Useful tools/ databases/methods that are related to the step

- **GreenPartnerships**
  http://www.greenpartnerships.eu/
  http://www.greenpartnerships.eu/wp/wp-content/uploads/GPs_SBSguide_web.pdf
  http://www.greenpartnerships.eu/wp/2015/04/14/expert-working-groups/
  http://www.greenpartnerships.eu/wp/wp-content/uploads/GPs_FP_Complete_FINAL.pdf

3.4.6. Step 6 - Implementation procedures

CHALLENGE	STEPS	RESULTS
Putting ideas into reality by following the necessary procedures	Provide for all necessary support documentation. Plan for sufficient time in implementation phase, problem solving procedures.	Implementation plan prepared and beginning of project activities implementation.

What this step implies?

This step describes the basic parts of implementation procedures, since they can differ from country to country, while even in-between regions there can be differences in required procedures, permits, supporting documents that need to be delivered and approved before actual investment is made. Also, the feasibility aspects of the proposed RES or EE project should be taken into consideration, such as defining of materials, components and manufacturer; preliminary assessment of investment costs; procurement procedures etc. Hence, success in the implementation phase is connected directly to the good planning process in previous phases.

Which should be the results of the step?

A Better implementation procedure and input for future projects planning.

Useful tips for fulfilling the step

- **Transparent procedures** in the official procurements and tenders enable to implement projects hand in hand with public.
- However, **Public relations and promotion** of the project help to establish good circumstances in favour of local economy with selection of local supply and production chains, social services and local manufacturers.

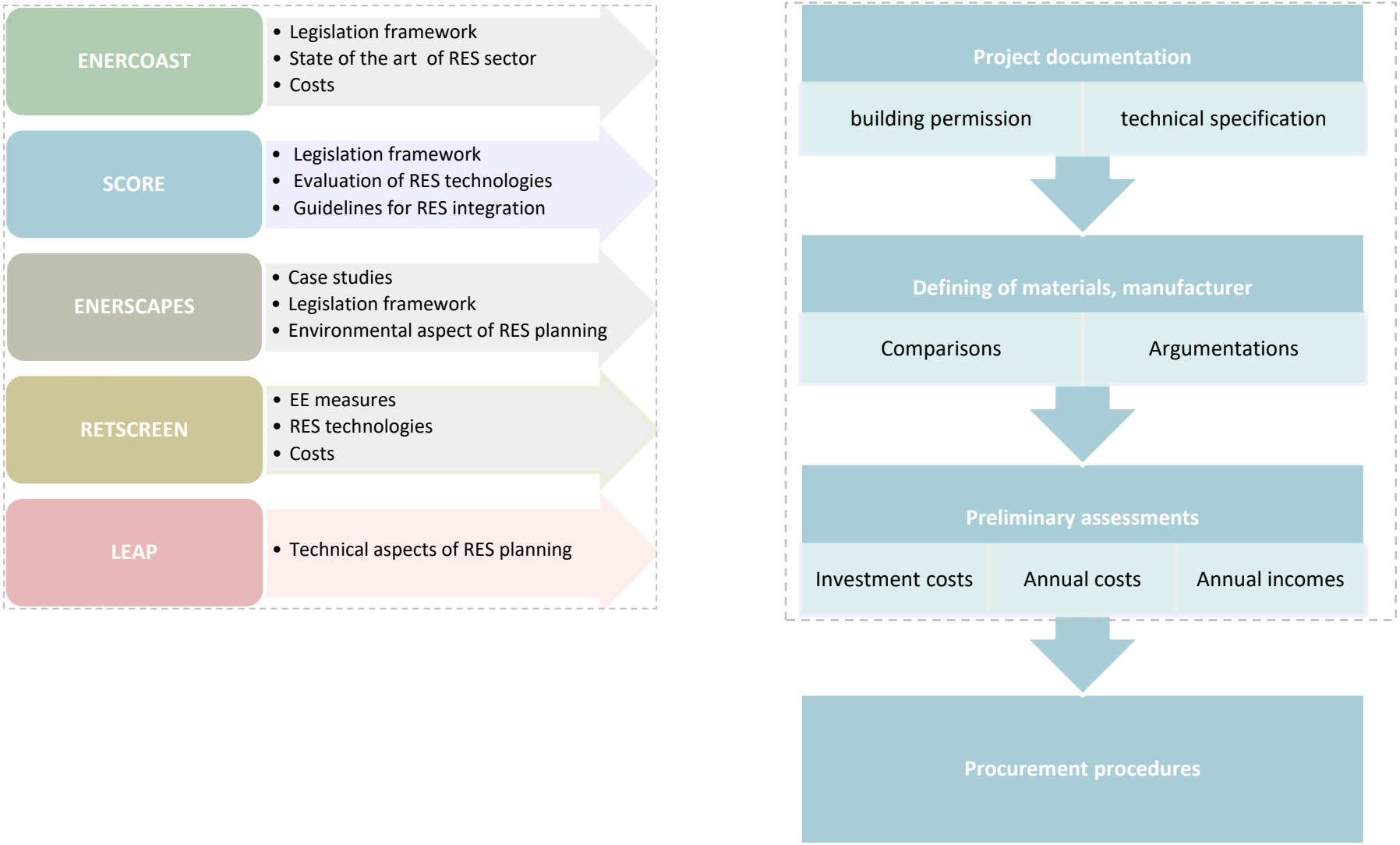


Figure 13: Basic Implementation Procedure

Useful tools/ databases/methods that are related to the step

- **ENERCOAST**
  http://www.medmaritimeprojects.eu/download/ProjectEnercoast/Action_TWO/ENERCOAST_Technology%20data.pdf
  http://www.medmaritimeprojects.eu/download/ProjectEnercoast/action_1/ENERCOAST_Final%20report%20legislation%20Enercoast%2012May2015.pdf

- **SCORE**
  http://www.scoremed.eu/case_studies.php
  http://www.scoremed.eu/regulations.php
  http://www.scoremed.eu/documents/report_LR.pdf

- **ENERSCAPES**
  http://www.enerscapes.eu/index.php?option=com_content&view=article&id=82&Itemid=77&lang=en
  http://www.enerscapes.eu/images/downloads/Enerscapes_FinalPublication_WEB.pdf

- **LEAP**
  https://www.energycommunity.org/default.asp?action=applications
  https://www.energycommunity.org

- **E³P**
  https://e3p.jrc.ec.europa.eu/

- **Other Sources**
  - Knowledge Platform recently developed by the Italian Environment Ministry
    - http://www.pdc.minambiente.it/en

3.4.7. Step 7 - Monitoring and evaluation

CHALLENGE	STEPS	RESULTS
Observe and predict possible hindrances in project implementation, improving the implementation process and gain input for future planning.	Implement the monitoring process and use the information as input for other respective steps when planning for another project.	Improvement of the implementation procedure and input for future projects planning.

What this step implies?

Evaluation is a systematic review of the past activities (what we did? with how much resources? in what time? with what effect?), in order to improve projects' implementation procedure.

After initial steps have been implemented and the project is running we need to evaluate the performance of the project by means of the common indicators, that have already been set (section 3.3) and to analyse possible declinations from the defined goals in the developed local energy action plan.

Although monitoring and evaluating is the second to last step its results can be used to improve the whole planning process in next iteration and can further contribute to identify and improve technology and socio-economic aspects of RES and EE projects, making it more attractive to investors and therefore improve possibilities to be implemented.

Which should be the results of the step?

Selecting an evaluation method is strongly related to the goals indicated and performance criteria for the projects results, part of the process elaborated in steps 2, 3 and 4. Due to different circumstances and environments in which RES and EE projects are implemented and the complexity of pilot actions, a testing and evaluation process of the planning methodology will be conducted.

Useful tips for fulfilling the step

- Definition of COMPOSE common Indicators

Useful tools/ databases/methods that are related to the step

- National Statistical Services
- National/regional surveys
- Municipal/ regional archives/ databases

3.4.8. Step 8 - Awareness raising: Promotion, communication and dissemination

CHALLENGE	STEPS	RESULTS
Promote achievements and positive impacts of implemented projects to expert and wider public.	Develop a comprehensive Communication and awareness raising document and capacity building activities.	Communication and awareness raising document in support of RES and EE project as important drivers of local development.

What this step implies?

Awareness raising in general can cover a huge range of activities:

- Campaigns, consultation events
- Promotion through posters, stickers, newsletters, press releases
- anything that involves people understanding, learning or doing something new;
- visioning the future;
- working out how to change something in their lives;
- word of mouth

Different tools can be used to implement different awareness raising activities and their application depends on what the desired effect is toward specific target group.
An effective awareness-raising campaign strategy will employ a variety of different communication approaches and techniques to ensure that the central message is received and understood by a diverse audience.

Which should be the results of the step?

Communication and awareness raising to support of RES and EE project are considered as important drivers of local development. To this purpose, brochures, emails, posters, newsletters, promotional material, press conferences etc. could be some of delivery tools (or results) for these activities

Useful tips for fulfilling the step

In order to take full advantage of the awareness raising activities there are some key tasks in developing the awareness raising plan that include:

- Define the target group for marketing efforts (customers, trade allies children, companies, etc.).
- Determine what communication channels will be used to communicate energy efficiency
- program information to each target group (direct mail, workshops, events, website, press
- Conferences and different presentations in media).
- Develop marketing messages that will be effective for each target group.
- Estimate a budget for marketing activities.

Useful tools/ databases/methods that are related to the step

- **ENERSCAPES**
  http://www.enerscapes.eu/index.php?option=com_content&view=article&id=82&Itemid=77&lang=en#CP4-LocalEvents

- **ENERCOAST**
  http://www.medmaritimeprojects.eu/section/enercoast-outputs

- **GreenPartnerships**
  http://www.greenpartnerships.eu/
  http://www.greenpartnerships.eu/wp/wp-content/uploads/GPs_SBSguide_web.pdf
  http://www.greenpartnerships.eu/wp/2015/04/14/expert-working-groups/

- **SCORE**
  http://www.scoremed.eu/eventi.php

For COMPOSE Partners: Look for additional guidance and useful materials at the outcomes of WP2 Communication

4. CONCLUSIONS

The Mediterranean area is an important place of action and exchange. The energy demand growth affects all the MED countries and if we would like to guarantee a sustainable use of energy resources the solution cannot be addressed by individual state. Shared vision between all countries, based on common efforts and knowledge transfer may achieve lasting results both in the short term but also in the medium - long term.

Mediterranean countries towards becoming energy self-sufficient is one of the important goals that need to be achieved. At the same time MED region needs to be protected from environmental point of view. In that sense, it is of crucial importance to encourage sustainable use of local natural resources and green investments by means of exploiting the existing knowledge and best practices, improving sectorial policies and providing financial instruments.

COMPOSE project aspires to become a good example of cooperation, in order to realise the common vision of Energy Efficiency improvement in MED territories, and more specifically in rural and island communities. To this aim, a holistic approach for RES planning models that will promote the increase of RES in the regional/local energy mix through the development of sustainable energy supply chains and the enhancement of local businesses is to be developed.

This approach will be based on the results expected from the implementation of 15 pilot cases. The starting point of this process is the development of a practical guide which is focused on addressing the challenging concept of COMPOSE project: how the existing knowledge, techniques, methods and tools, as part of a holistic approach, will contribute to the future development planning of local communities. This guide discusses the added value of COMPOSE project and determines specific key issues that should be emphasized such are the synergies with past or current EU and other projects or initiatives. Also, a detailed analysis of the COMPOSE methodological approach, explaining the main implementation steps that support in the development of local energy action plans. The proposed methodology could improve energy strategies and will be tested on field during the COMPOSE activities.

5. REFERENCES

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6. ANNEXES

6.1. Compose pilot demonstration actions

Pilot actions theme	Country	Priority area of intervention	RES involved
3.7 Renewables connecting municipalities through their joint local potential	Slovenia	• **Local business models** • Awareness/ Behavioural change/ Social acceptance on RES	Biomass
3.8 Energy savings and renewable invest potential in public buildings of Lakatamia Municipality	Cyprus	• **IT/ Web tools/ Monitoring management systems** • Awareness/ Behavioural change/ Social acceptance	PV
3.9 From energy savings to RES investments	France	• **Local business models** • Awareness/ Behavioural change/ Social acceptance on RES	PV
3.10 Awareness campaign to foster social acceptance and local investments of small-scale RES	Greece	• **Awareness/ Behavioural change/ Social acceptance** • IT/ Web tools/ Monitoring management systems	PV/WIND Biomass
3.11 Biomass potential in rural island communities (Case of Anogia – Crete)	Greece	• **Awareness/ Behavioural change/ Social acceptance** • Small scale RES demonstration	Biomass
3.12 From UCO to biodiesel	Greece	• **Local business models** • Small scale RES demonstration	Biofuels
3.13 Greening Capalbio energy	Italy	• **Small scale RES demonstration** • IT/ Web tools/ Monitoring management systems	PV
3.14 Energy upgrading in historical rural municipalities	Italy	• **IT/ Web tools/ Monitoring management systems** • Awareness/ Behavioural change/ Social acceptance	PV
3.15 RES in rural environments - Sesimba	Portugal	• **Empowering local authorities/ communities for innovative development of local potentials** • Small scale RES demonstration	Biomass
3.16 RES in rural environments - Biovilla	Portugal	• **Empowering local authorities/ communities for innovative development of local potentials** • Small scale RES demonstration	Solar Biomass
3.17 From EE measures to RES investments	Spain	• **Small scale RES demonstration** • Awareness/ Behavioural change/ Social acceptance • Local investment strategy to RES and EEM development.	Solar, PV, Wind. As support: biomass, geothermal, aerothermal
3.18 Koprivnica Krizevci County RES investment potential – Development of Energy Investment Plan	Croatia	• **Local business models (financial models development)** • Empowering local authorities/communities for innovative development of local potentials	
3.19 Fostering RES awareness through School Programmes – The promotion of systems using biomass as a fuel in School Programmes	Albania	• **Awareness/ Behavioural change/ Social acceptance** • Empowering local authorities/ communities for innovative development of local potentials	Biomass
3.20 RES for Municipality development - Preparation of heating plant reconstruction project in order to exploit the potential of biomass in our area	Bosnia & Herzegovina	• **Local business models** • Empowering local authorities/communities for innovative development of local potentials	Biomass
3.21 RES in small urban-rural communities – KRNOVO WIND FARM IMPACT (KWFI)	Montenegro	• **Awareness/ Behavioural change/ Social acceptance** • Empowering local authorities/ communities for innovative development of local potentials	Wind

6.2. Compose common Indicators

INDICATOR	SCALE	3.7 Renewables connecting municipal-lities through their joint local potential SLOVENIA	3.8 Energy savings and RES invest potential in public buildings of Lakatamia CYPRUS	3.9 From energy savings to RES investments FRANCE	3.10 Awareness campaign to foster social acceptance and local investments of small scale RES GREECE	3.11Biomass potential in rural island communities GREECE	3.12 From UCO to biodiesel GREECE	3.13 Greening Capalbio energy ITALY	3.14 Energy upgrading in historical rural municipalities (Giove) ITALY	3.15 RES in rural environ-ments – Sesimba POR-TUGAL	3.16 RES in rural environments – Biovilla PORTUGAL	3.17 From EE measures to RES investments SPAIN	3.18 Koprivnica Krizevci County RES investment potential CROATIA	3.19 Fostering RES awareness through School Programmes ALBANIA	3.20 RES for Munici-pality develop-ment BOSNIA & HERZE-GOVINA	3.21 RES in small urban rural communities MONTE-NEGRO
Environmental Capital																
Greenhouse gas (CO_2, CH_4,N_2O, O_3,H_2O CFCs) emissions (Europe 2020 indicator)	kiloton (kt) of CO_2-equivalents	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Air pollution: PM_{10},$PM_{2,5}$, CO, NOx, SOx	µg/m^3 (concentration-annual mean)	X	X			X	X								X	X
Noise pollution	number of times with exceedances of the threshold of L_{den} (55 db)															
Waste to Energy - e.g. UCO collection in L (optional)	Mtoe	X				X	X					X		X	X	
Energy																
Natural resources and energy																
RES from local resources in the energy mix	%	X	X	X	X	X	X	X	X	X	X	X		X	X	X

Electricity generated from RES	kWh/y or Mtoe/y	X	X	X	X			X	X	X	X	X	X			X
Thermal energy generated from RES	kWh/y or Mtoe/y	X		X	X	X				X	X	X	X	X	X	
Bioenergy Supply Chain, e.g. Biofuels production in L (optional)	L or kWh or Mtoe	X					X					X		X	X	
Fossil fuels saved	Mtoe	X	X	X	X		X	X	X	X	X	X	X		X	
Export of energy from local resources	kWh/y or Mtoe/y															
Energy consumption																
Primary energy consumption	kWh/y or Mtoe/y		X	X												X
Final energy consumption (by sector)	kWh/y or Mtoe/y									X	X					X
Energy saved through the adoption of EE measures (per segment-optional) - e.g. energy saved by installing building energy management systems (optional) - energy saved through the adoption of EE measures in public lighting (optional)	kWh/y or Mtoe/y		X	X		X		X	X	X	X	X	X			

Social Capital																
Health																
Life expectancy at birth by sex (Europe 2020 indicator)	years															X
Exposure to air pollution (population)	Population exposed to levels exceeding WHO guideline value (% of total)	X				X								X	X	
Quality of life																
Gross disposable household income	Amount in euros			X								X				X
People at risk of poverty or social exclusion (Europe 2020 indicator) or % in risk of poverty	Population (% of total)											X				X
Households at risk of energy poverty or % in risk of energy poverty	Households affected (% of total)															
Knowledge & Innovation																
Population aged 25-64 with tertiary education (optional)	% of population aged 25-64															X
Research & experimental development expenditure as % of GDP (Europe 2020 indicator)	% of GDP															X
Number of people reached by awareness-raising activities	Number of people (or % of local population)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Number of people trained e.g. number of participants in CBW /study visits/ trainings	Number of people (or % of local population)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Employment																
Employment rate 20-64 years by sex [%] (regional) (Europe 2020 indicator)	% of population (20-64 y.o.)															X
Share of employment by sector	% of total employment															X
Youth unemployment rate	% of labour force (15-24 y.o.)															X
Number of new jobs	Number of jobs	X	X			X	X					X				X
Number of employed in Green Economy out of the total labour force; e.g. Full direct jobs equivalents along the full value supply chain	employment (% of total)	X				X	X									
Share of tourism related employment in total employment (optional)	% of total employment															
Population																
Population	Number of residents											X	X			X
% of population in the age range 20-64 years (optional)	% of total population												X			X
Ageing index (optional)	% (ratio)															

Economy																
% of GDP of direct investment in green energy	% of GDP															X
RES Investment triggered	Amount in euros	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Contribution to rural economy (optional)	Amount in euros	X	X	X			X					X			X	
Number of new SMEs established	Number of SMEs			X	X	X									X	X
Number of local energy cooperatives	Number of cooperatives			X		X	X					X		X		X
Number of overnight stays of tourists per capita per year (optional)	Number per capita							X	X							X
Number of European cooperation projects	Number of projects	X	X	X	X	X	X			X	X	X	X	X		
Number of new policies at regional level.	Number of regulations improving the local context		X	X			X	X	X	X	X			X	X	X
Contribution to municipality development (cost savings from implemented measures can be transferred for municipality development, among other things and for creation of new jobs)	Amount in euros												X			
Gross Disposable Local Income (optional)	GDP per capita															

6.3. Case study - Example application of the methodology at A3.12 From UCO to biodiesel-Rethymo Greece

Objective: The following annex is intended to provide a clear understanding of how the proposed methodology may serve as a basis for preparation of individual implementation plans. Specifically, activity 3.12 (From UCO to biodiesel) is selected as a tangible case study/example to describe in detail the main steps of the proposed methodology, contributing to the successful completion of this process.

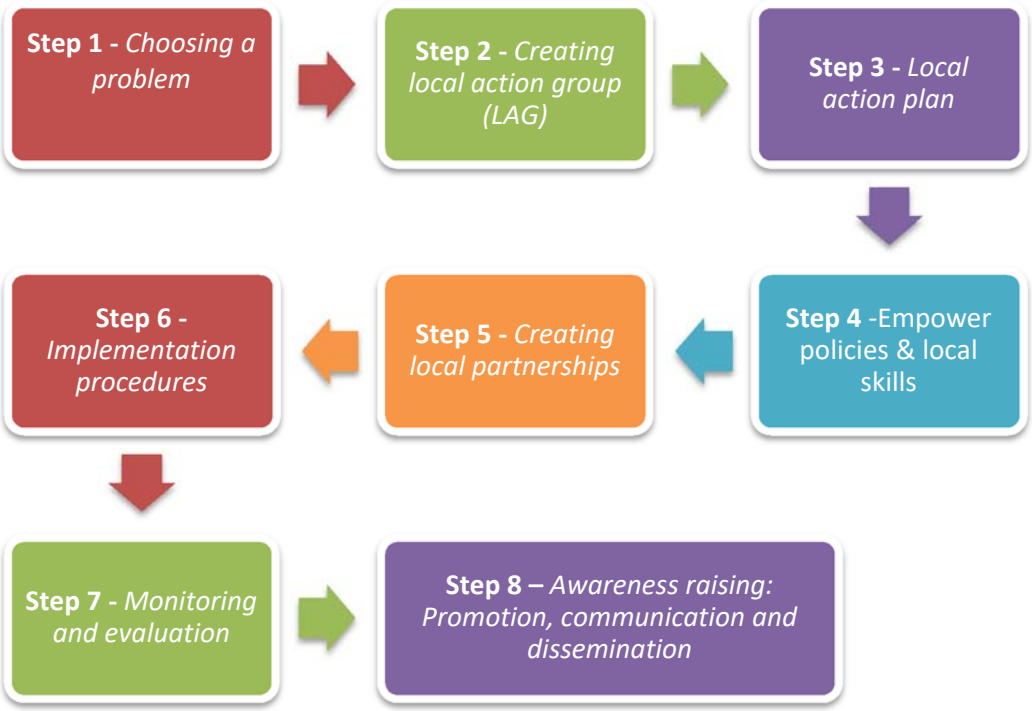


Figure 14: An overview of COMPOSE methodology

Step 1 - Choosing a problem

The aim of this initial step is to simplify the identification of suitable RES and EE projects for better impact in local environments. To this purpose, several factors should be taken into account based on the existing situation/challenge in the environment and local community, before preparing an action plan to be implemented.

More specifically, it is of crucial importance the definition of 'scenario 0', describing the current conditions of the pilot-area without any interventions. In order to elaborate 'scenario 0', information concerning the energy issues, but also socio-economic and environmental aspects is needed. A relevant description in details is provided in the Definition of Compose common Indicators report.

By utilizing appropriate tools and databases to collect related information, the recognition of energy needs, environmental burdens, impact on the local economy, implementation possibilities, impact on the promotion of RES and EE, as well as specific issues such as main challenges could be achieved.

In figure 14, the analysis for the initial step's implementation of the case study (*From UCO-to-Biodiesel*) is presented:

Step 1 - Choosing a problem

ENERGY NEEDS	•UCO raises the energy consumption of wastewater treatment
ENVIRONMENTAL BURDEN	•Improper disposal of UCO (highly toxic for the sea, streams, lakes and other ecosystems)
IMPACT ON THE LOCAL ECONOMY	•Waste to green energy •New employment opportunities: "green jobs" •Cost savings in water treatment and sewage maintenance
IMPLEMENTATION POSSIBILITIES	•a local cooperative for local UCO collection, transformation and exploitation
IMPACT ON THE PROMOTION OF EE AND RES	•Raise awareness of citizens for UCO recycling benefits •Large target group of final users

Needs

•High Energy Consumption for wastewater treatment

Identified opportunities

•To exploit the UCO produced in households and HORECA to useful green energy

•Cost savings in water treatment and sewage maintenance that can be used for upgrading the infrastructure or can be translated to decreased water bills. Both scenarios are in favour of the local population

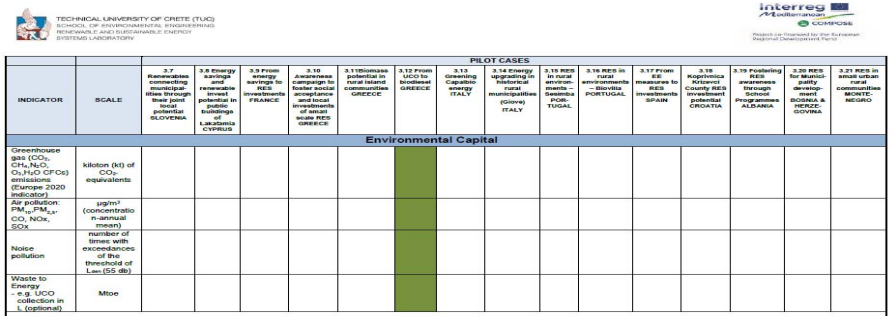
•Create new job opportunities through the establishment of a local cooperative for local UCO collection, transformation and exploitation and promote new business models that can be used as a good practice in local or EU level

Barriers/Challenges

•Legislative limitations regarding local UCO transformation for self-consumption

•No transformation plant exists in Crete, collected UCOs have to be transferred to biodiesel producers located in the mainland, via sea (this might lead to high costs for the collection making this process less or –in some cases- not sustainable).

•The Municipality could not fund the maintenance of UCO collection systems; this should be "self-financed" by the UCO collected volume; the appropriate compensational benefits is a key for the municipality's decision, support and commitment for a sustainable UCO collection system.



INDICATOR	SCALE	PILOT CASES														
		3.7 Renewables connecting municipalities through their joint energy potential SLOVENIA	3.8 Energy savings and renewable invest potential in public buildings of Lakatamia CYPRUS	3.9 From energy savings to RES investments FRANCE	3.10 Awareness campaign to foster social acceptance and technical specifications of small scale RES GREECE	3.11Biomass potential in rural island communities GREECE	3.12 From UCO to biodiesel GREECE	3.13 Greening Capalbio energy ITALY	3.14 Energy upgrading in historical rural municipalities (Giove) ITALY	3.15 RES in rural environments – Sesimbra POR-TUGAL	3.16 RES in rural environments – Biovilla PORTUGAL	3.17 From EE measures to RES investments SPAIN	3.18 Koprivnica Krizevci County RES investment potential CROATIA	3.19 Fostering RES awareness through School Programmes ALBANIA	3.20 RES for Municipality develop-ment & Bosnia & HORZE-GOVINA	3.21 RES in small urban rural communities MONTE-NEGRO
Environmental Capital																
Greenhouse gas (CO_2, CH_4, N_2O, O_3, H_2O CFCs) emissions (Europe 2020 indicator)	kiloton (kt) of CO_2 equivalents															
Air pollution: PM_{10}, $PM_{2.5}$, CO, NOx, SOx	µg/m³ (concentration-annual mean)															
Noise pollution	number of times with exceedances of the threshold of L_{den} (55 db)															
Waste to Energy – e.g. UCO collection in L (optional)	Mtoe															

Figure 15: An overview of Step 1 - (case study: From UCO-to-Biodiesel)

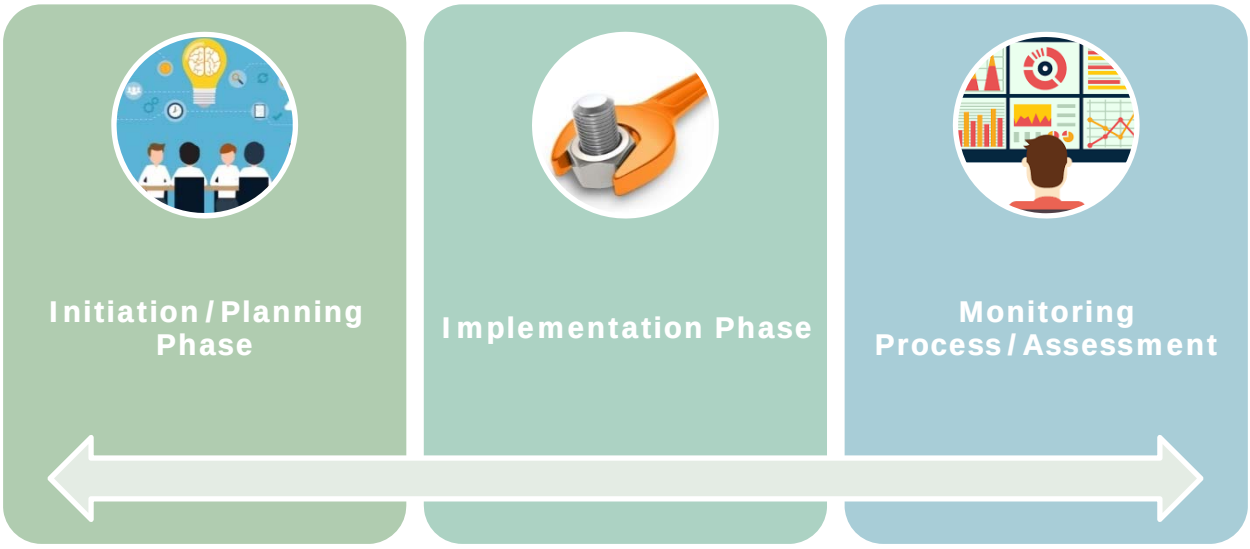
Step 2 - Creating local action group (LAG)

The different nature of each development project of RES or EE, its requirements, level of impact to the different stakeholder clusters should be taken into account when selecting the appropriate LAG members. Consequently, it is crucial for citizens and stakeholders' groups to be fully involved from the beginning. All key players in the case study are mentioned in the following table.

Table 5: Stakeholders to be engaged in the LAG.

Key Stakeholders
•Municipal Sanitation and Recycling Services
•Enterprise of Water and Sewage
•Department of Education - Lifelong Learning –Volunteering
•Association of hotels and restaurant owners
•Associations of active citizens and citizens volunteering groups
•Municipality of Rethymno
•Chamber of Commerce
•Regional UCO collectors

Levels of Intervention



LAG members may be involved in the following activities:

- **Initiation/Planning Phase**
  - Identification of energy plan priorities and development of project in order to match the local needs
  - Contribution to the preparation of local step-by-step plans
  - Preparation of technical solutions for the realization of the pilots and support their implementation
- **Implementation Phase**
  - Support the capacity building activities in municipal level
  - Identification of efficient ways/tools to increase public awareness and disseminate the projects' outcomes (local team of volunteers?)
- **Monitoring Process/Assessment**
  - Monitoring and assessment of the progress of the pilots; the capitalization of project results
  - Contribution to the improvement of local energy strategy.

Step 3 - Local action plan

Aim of this step:
To develop the conditions in which a local UCO-to-biodiesel supply chain will function successfully in favour of the Municipality of Rethymno providing multiple benefits both environmental and financial.

Specific objectives:

- Increase rate of UCO recycling
- Safe disposal of UCO
- Raise awareness of citizens for UCO recycling benefits
- Initiate the establishment of a viable local energy cooperative
- Municipal fleet operating with green fuels

Figure 15 presents the basic steps in the UCO-to-biodiesel pilot action planning.

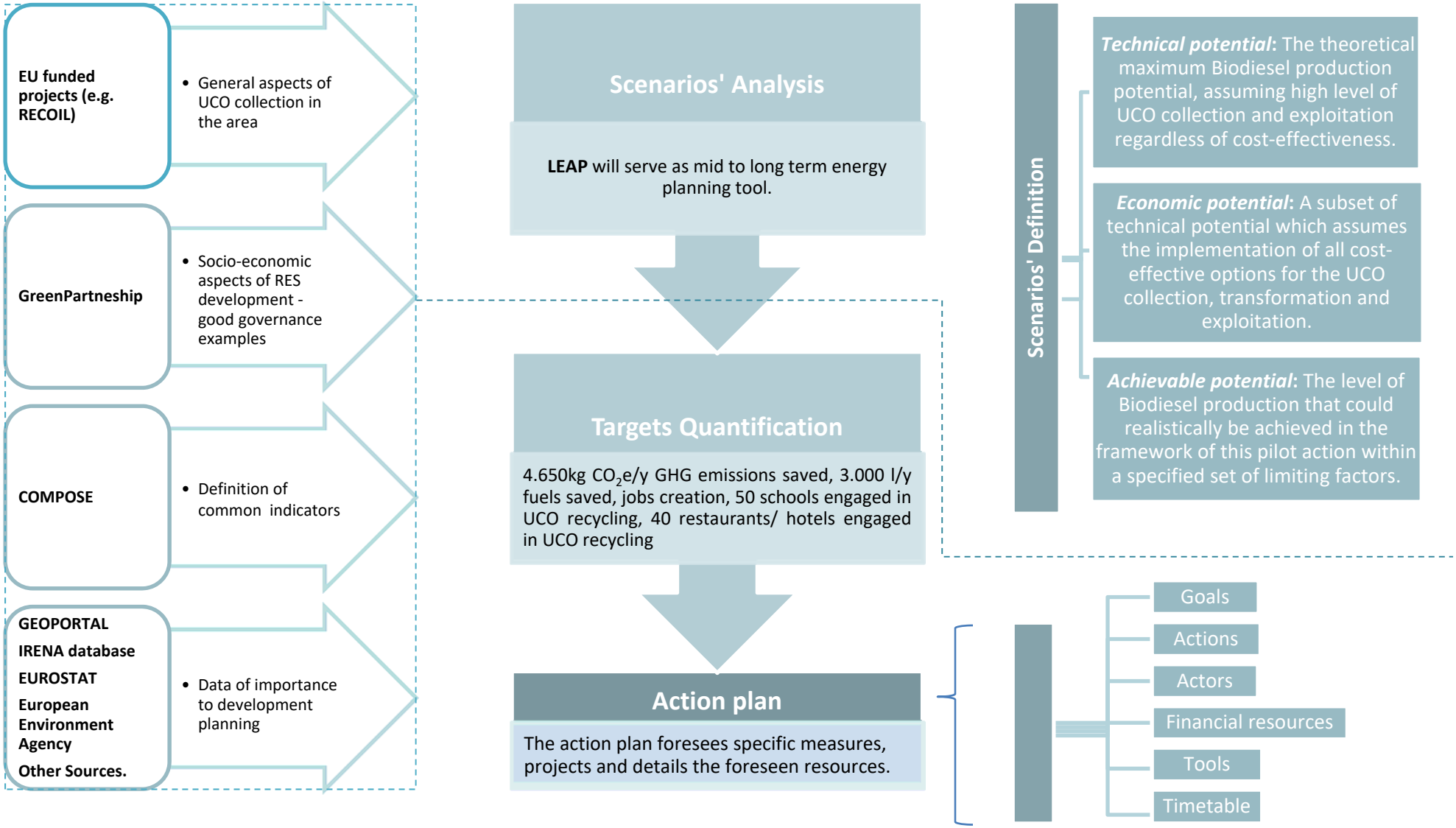


Figure 16: Basic steps in the UCO-to-biodiesel pilot action planning

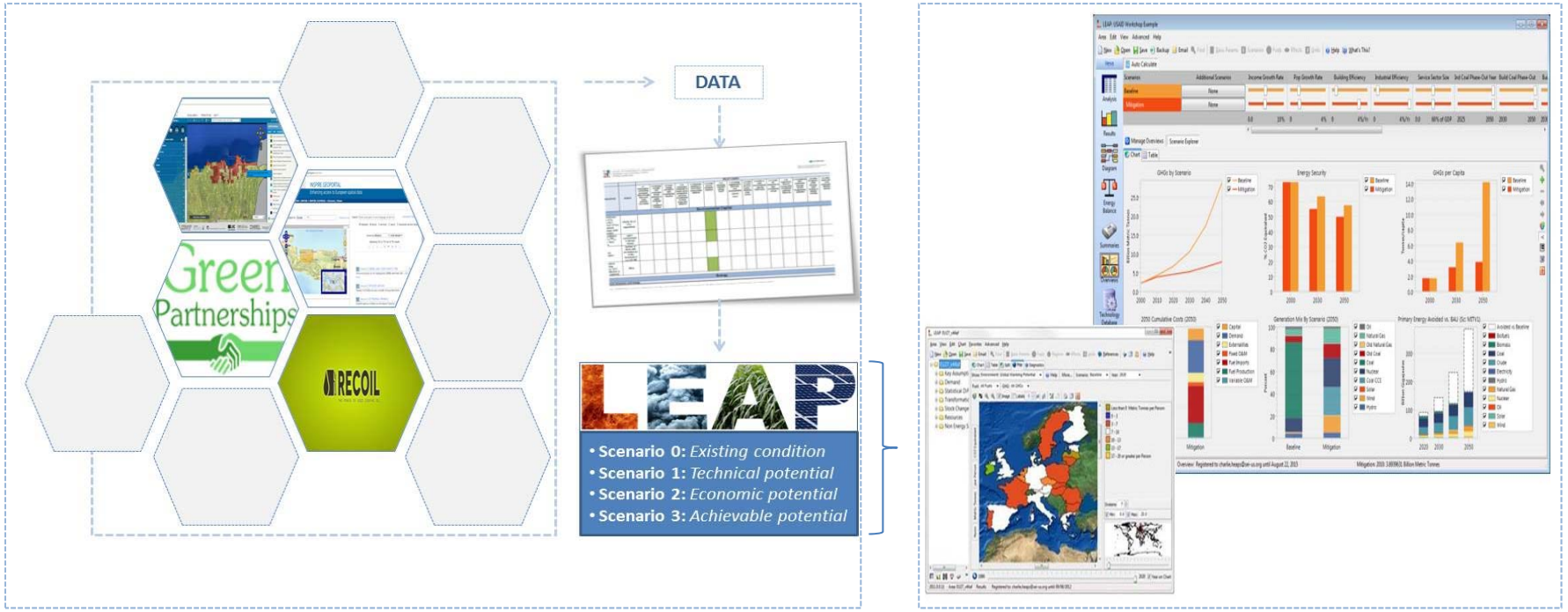


Figure 17: Overview of Local action planning process (Scenarios' Analysis)

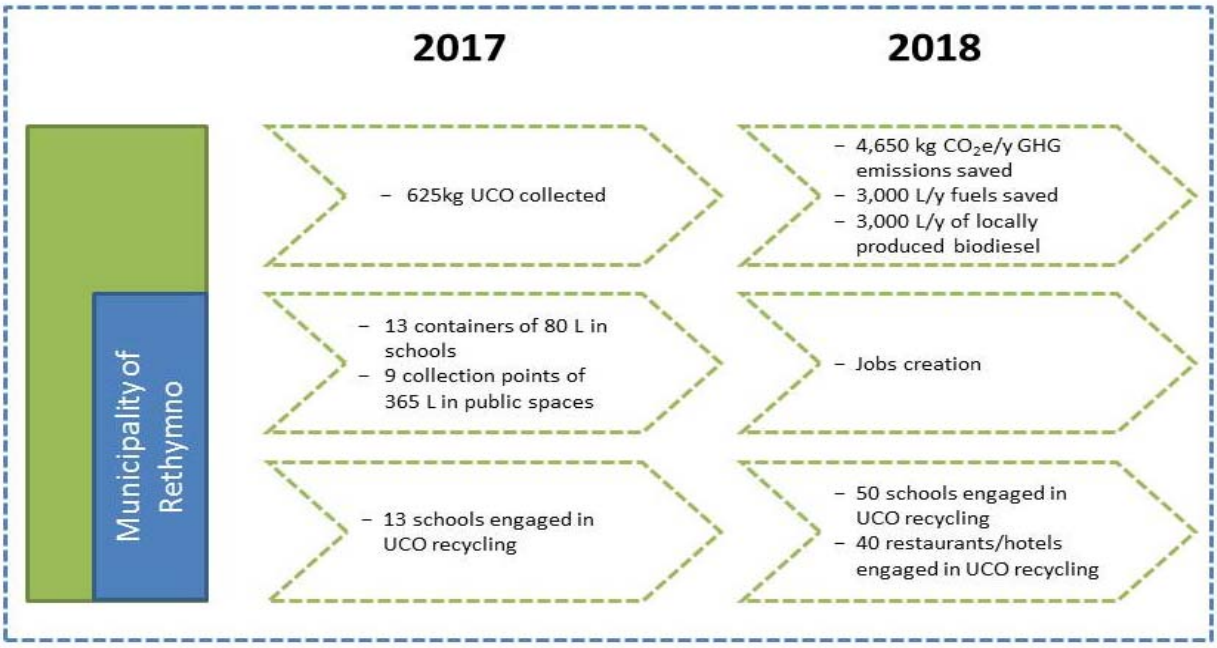


Figure 18: Indicative timeline of goals

Step 4 - Empower policies & local skills

Indicate capacity building needs for the successful implementation of the pilot action:

- Workshop for local stakeholders (SMEs, municipal staff, individuals) on the development of a local energy cooperative.
- Workshop for employees in the municipal Sanitation and Recycling Services and the UCO collection company on efficient management of UCO collection.
- Workshop for the technical department of the municipality on the operation of a small-scale biodiesel production unit.
- School teachers' training on technical issues and environmental impacts of UCO.

Figure 19: Training and capacity building workshops in the GreenPartnerships regions (Source: TUC)

Step 5 - Creating local partnerships

Good partnership is characterized by a participatory, co-developing approach, where partners contribute to the common goal with their input and have clearly defined results they want to achieve within the partnership.

Effective partnership involves different parties such as technicians, engineers, public sector and other stakeholders, in order to implement the project. The structure depends on the goals and amount of work, which has to be done in the common project. It's important, that the local partnership reaches an agreement about the coordinator of the project, which is responsible for the implementation as well as the controlling of the project.

Another important task in this step is the appropriate division of roles in the framework of the project. In the next figure the main topics to be supported by key stakeholders are presented.

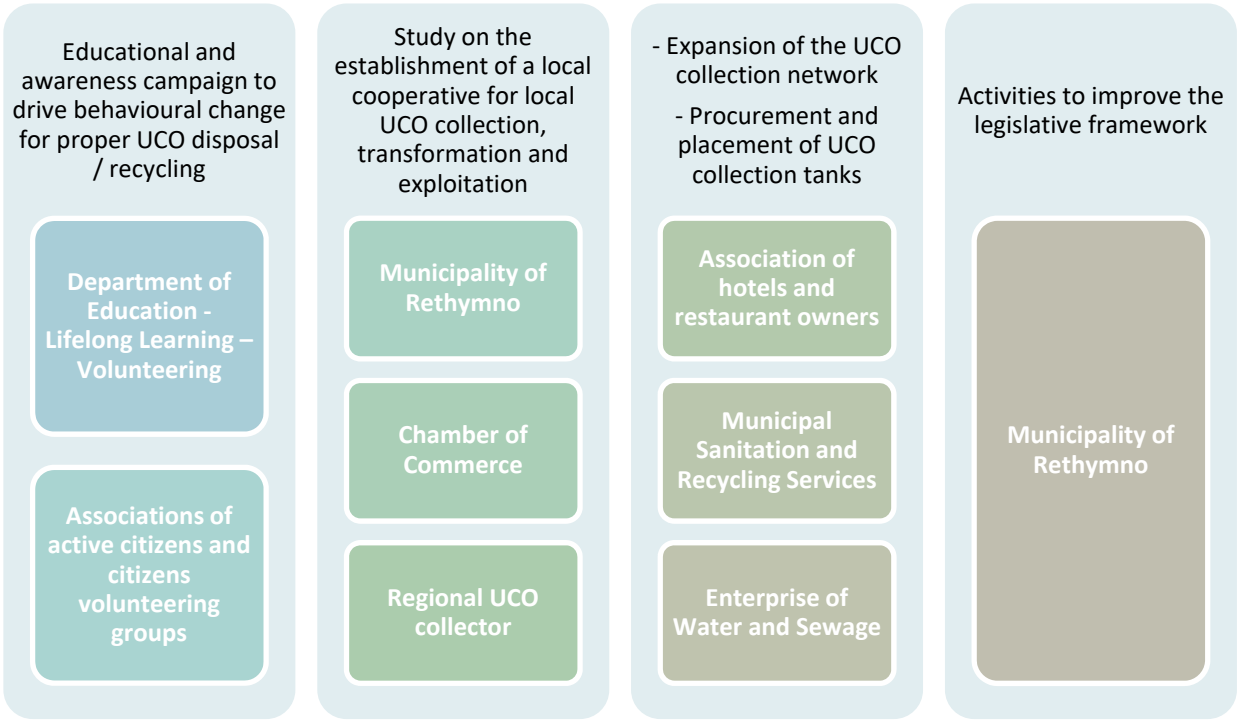


Figure 20: Local partnership's division of roles by the coordinator of the pilot action (TUC)

Step 6 - Implementation procedures

This step describes the basic parts of implementation procedures, since they can differ from country to country, while even in-between regions there can be differences in required procedures, permits, supporting documents that need to be delivered and approved before actual investment is made.

In addition, the feasibility aspects of this pilot project needs to be taken into consideration, such as defining the necessary equipment, implementing the public procurement process, developing the promotional materials, organising and implementing the capacity building activities.

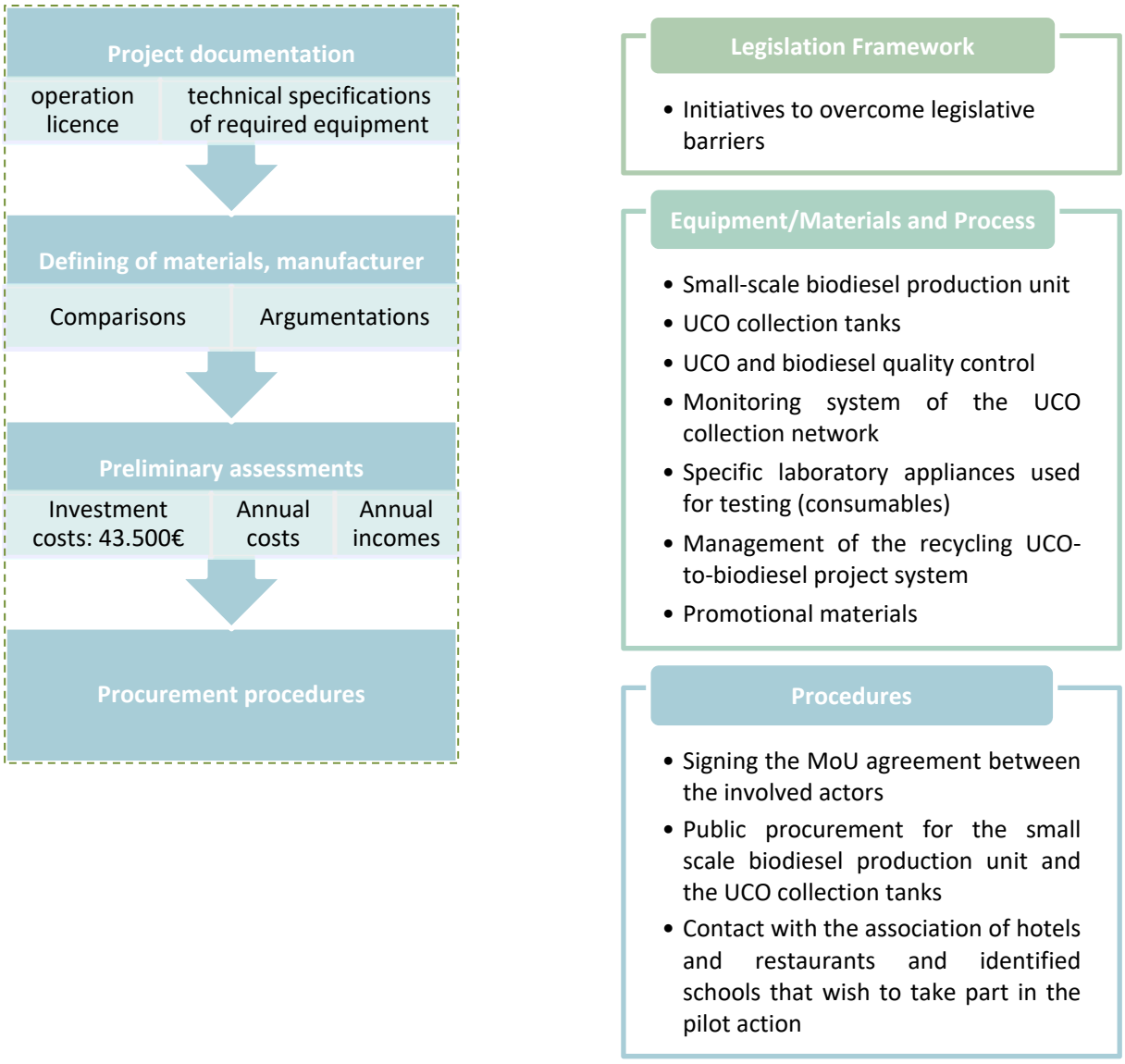


Figure 21: Main phases of implementation procedure

Figure 22: Defining of materials, equipment and processes

Step 7 - Monitoring and evaluation

To get a basic overview of the project performance, three levels of project implementation should be addressed as presented[2] in this table:

Table 6: Three levels of project implementation

IMPACT	Which parameters to monitor?	Whom to report about the results?	Evaluation criteria?
Strategic level	a. improvements to legislative framework that at the moment has limitations for small scale biodiesel production b. increase in number of RES and Environmental Protection projects developed and implemented c. Improvements to strategic documents e.g. SEAP or Local Action Plans d. identified opportunities through the establishment of a local cooperative for local UCO collection, transformation and exploitation	- administrative authorities - relevant interest groups - expert groups at regional, national level who work in energy and energy related sectors - media and relevant NGO or other interest groups	- Changes in legislative framework - Number of new RES and EE projects - Changes in SEAP or equivalent relevant strategic documents - Concrete interest from private investors expressed
Technological level	a. utilisation of residual waste (UCO) for energy production, closed production cycles b. decrease in costs of energy for wastewater treatment c. benefits arising from implemented projects e.g. less emissions, less maintenance and lower costs of maintenance of the sewage system	- "technology experts and research institutes" - all stakeholders involved - media and relevant NGO or other interest groups	- Savings in cost of energy - Savings in cost of maintenance after recycling UCO-to-biodiesel project implementation - Reduction of emissions
Socio economic level	a. local businesses started b. green jobs c. local (or wider) added value chains established d. increased awareness of people about UCO recycling as contributors to community welfare	- all stakeholders involved - media and relevant NGO or other interest groups	- Number of business or other business related activities started as a result of UCO to Biodiesel activity implementation - Number of people (citizens + pupils) informed from the campaign

[2] More detailed analysis is presented in COMPOSE common Indicators report.

Based on this process, evaluation, an overview of the past activities (what we did? with how much resources? in what time? with what effect?) can be exploited to improve UCO-to-biodiesel projects' implementation procedure.

Important Note: A set up of additional criteria (if it is necessary) could be considered to evaluate effectively the performance of the project. These criteria should be in direct correlation with the defined goals and indicators already set for the project.

Step 8 - Awareness raising: Promotion, communication and dissemination

Awareness raising is an important field in this pilot activity. To reassure a wide dissemination of the project's benefits and a well-functioning of UCO to biodiesel chain the following activities are planned:

- 40 educational events in schools
- 2 public events
- Educational and Information material produced: 1000 posters, 40.000 flyers, promotional video

The foreseen impact of the awareness raising campaign is:

- 4.300 pupils (the whole school's community) reached by the educational campaign
- 15.000 citizens reached by the promotional campaign

Figure 23: Awareness raising activities