



Project Information Sheet

Eco-Industrial Park Environmental Support System (EPESUS)

Programme area: CIP Eco-innovation, Pilot and Market Replication Projects

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Summary

Eco-Industrial Park Environmental Support System - EPESUS is an Eco-Innovation project under the Entrepreneurship and Innovation Programme (EIP) component of Competitiveness and Innovation Framework Programme(CIP).

The general aim of the system is to serve Small and Medium Size Enterprises (SMSEs) within an industrial park or in any communication network, in improving their environmental requirements and competitiveness in international platform. The project aims at supporting the SMSEs regarding their resource usage and energy efficiency by the aid of a software tool.

Objective and Aims

Objective:

Eco-Industrial Park Environmental Support System (EPESUS) project aims to serve Small and Medium Size Enterprises (SMEs) within an industrial park or any communication network, in improving their environmental requirements, managing their resource usage and waste treatment and improving their energy efficiency.

Aims:

- The project aims at designing industrial establishments defined as “eco-industrial parks” (EIP).
- The project will provide guidance for waste minimization and reuse, energy saving potential and optimization for the industrial establishments in an EIP.
- Establishments of an EIP will be supported by utilization of symbiotic relations
- The project system will deliver a set of guidelines and best practices regarding energy efficient and environmental friendly techniques for designers, decision makers and industrialists within an EIP.
- The software as a decision support tool will be developed in order to design and establish an eco-industrial park.
- The software will be consisting two modules: waste and energy. (More information about the two modules is given under the project modules section)
- The software will be comprised of separate modules related with establishment, management, financial issues, sustainability and strategies on the design of EIPs.



• Within the project five industrial sectors will be analyzed: **textile-processing plants, Smitheries and foundries, large combustion plants, building industry and polymer plants**. Once the mass balances of the processes within the plants are completed and verified by the companies, a process resource/output flow models of each sector will be prepared. Gate to gate or cradle to gate life cycle assessment models will be used for each sector assessment. All of the plant models will be developed to create the industrial ecosystem model.

Main Project Results

- As a result of the project, decision makers will be guided at the stage of establishment of new industrial parks.
- Existing national industrial park managers are also going to be assisted in the decision making process among industrial parks.
- An increase in the awareness of industries on environmental liabilities and thus the implementation of the EU Environmental Acquis within the national industry will also increase.
- Benefits such as cleaner production, pollution reduction, waste reduction and reuse, energy efficiency, inter-company co-operations are expected to be provided.
- Symbiotic benefits among any group of industrial networks that are using the system is expected to be established.

Project Modules

Waste management module will be concerned about the followings:

- Facilitating waste-resource exchange among the industries and encouraging reuse of products. Waste module will be implied over the waste stream and process by products of the EIPs such as;
 - o Excess raw materials, operating inventories;
 - o Waste-Stream Categories of Waste, European Waste Catalogue
 - o Total amount of waste generated/industrial sector,
 - o Recyclables, hazardous and non-hazardous wastes within the facility,
 - o Identify candidate waste, by-product, and resource streams
 - o Recycled outside the facility (tonne/year)
 - o Disposed Amount (tonne/year)
 - o Idle, obsolete, unused or inoperable equipment, machinery and facilities;
 - o Special waste such as tyres, electric and electronic wastes
 - o Construction and demolition waste
- Bringing improvement solutions considering the Environmental regulations and existing technical documents such as Best Available Techniques (BAT) and BAT reference documents (BREF) of the industrial sectors
- Quantifying those modifications through reliable indicators
- Assistance to the industrialists to cope with the legal responsibilities considering the environmental issues
- Assistance in waste exchange opportunities both within the EIP or any larger region
- Waste elimination or at least waste minimisation activities and their impacts on environmental and economic indicators.

The energy support system will be concerned about the followings:

- Energy efficiency of the buildings within EIPs: As well as the software module, the guidance documents will support decision makers regarding environmental friendly and energy efficient planning for EIP buildings. The software tool will guide the users for optimization of the use of energy sources.
- Life-cycle assessment method for EIP buildings: In order to define the environmental effects, life-cycle assessment method will be used. The life cycle of the buildings will be studied in several stages such as design, construction, operation, and demolition.
- Energy efficiency in the EIP establishments' processes will be supported with guidance on energy efficient techniques and components.



Detailed Expected Outputs

EPESUS project will provide a network based information exchange and decision support system to any group/cluster of industrialists towards achieving cleaner technologies in cooperation with relevant industrialists. Use of information communication technologies to create a platform supporting these activities would provide significant positive synergy effects for industrial actors.

EPESUS software will be deployed to the IT infrastructure of the management bodies of any Network of Industrial establishments such as EIPs or local authorities. Industrial clusters' and EIPs' decision makers and managers, associate company owners, engineers and architects will be the users of the EPESUS Information System.

EPESUS Information System will provide the following outputs and information:

- Maintain and manage information on the mix of companies and their ability to use each other's by-products.
- Provide a cumulative analysis on the possible exchange, reuse or management of products and waste within the network to provide a systematic methodology for optimising the resource requirements and waste management.
- Make estimations on the waste, energy and CO2 emissions of an EIP based on past statistical data.
- Provide estimations based on green technology implementation, setting goals for the cluster of companies and individual companies, evaluating the potential improvement in greenness and sustainability of the activities.
- Serve the industrial establishments in making micro scale estimations and setting individual goals, providing guidance and support for green technology implementations and improvement in environmental performance for both individual companies and the EIP.
- Provide a tool for inter-company communications, informs members of local environmental conditions, and provide feedback and monitoring on EIP performance.

Project Partners

- General Directorate of Electrical Power Resources Survey and Development Administration, Turkey
- Turkish National Committee on Solid Waste, Turkey
- National Productivity Center of Turkey, Turkey
- TEKPORT Ltd., Turkey
- Dicon Group Ltd., Bulgaria
- Bulgarian Business Network, Bulgaria
- LVI – Beratungs und Service GmbH., Germany
- Ankara Chamber Of Industry 1.Organized Industrial Zone, Turkey
- Small and Medium Enterprises Development Organization, Turkey