EPESUS

For Sustainable Industries and Cities

Material flow analysis (MFA):

MFA constitutes to a basic input-output analysis for evaluating energy, material and water efficiency. Ekodenge has developed EPESUS software capable of conducting MFA and generate visual reports through Sankey diagrams.

[You can check >> CIP Innovation Project]

Multi-objective optimization and decision support framework:

Decision makers often have to deal with trade-offs and it is essential to bring a holistic approach for an informed-decision making process. Ekodenge is currently integrating a multi-objective optimization tool into EPESUS, which utilizes results of life cycle impact and cost assessment.

EPESUS is also evolving into a real time decision support tool named "EKOBİNA" which combines sensors and big data analytics for real-time energy management in buildings.

[You can check >> FAPA Project]

Life cycle analyses:

Life cycle thinking is in the core of sustainability. Along with social considerations, life cycle assessment (LCA) and life cycle costing (LCC) lay foundations of sustainability assessment of industrial and urban systems. MFA in EPESUS provides basis for LCA and LCC modules, which helps us to identify and prioritize sustainability measures.

[You can check >> POAP Project]

Industrial symbiosis and circular economy:

Ekodenge is aware of the added value of joint sustainability efforts over individual cases of implementation. To ensure success of industrial symbiosis and circular economy models, we use novel approaches including innovative circularity indicators, urban metabolism and agent-based modelling for sustainable assessment in industrial clusters and urban ecosystems.

[You can check >> FISSAC Project]

EPESUS
Eco-Industrial Park Environmental Support System

For Industrial Sustainability Services

- **Process modelling**

- **Sustainability assesment for resource and energy efficiency**

- **Cleaner production strategies**

- **Network analysis through industrial ecology metrics**

- **Social engagement**

- **Industrial symbiosis**

For Sustainable Cities and Districts

- **Energy simulations**

- **Urban and district level material flow analysis through urban metabolism**

- **Support for sustainable energy action plans**

- **Air pollution modelling**

- **Sustainability assesment**

Common Capabilities

- **Holistic view of material and energy flows**

- **Geo-referencing**

- **LCA and LCC**

- **Senario analysis**

- **Big Data analytics for the industrial and urban ecosystems**

- **Graph and network topologies for industrial relations, optimization and time series analyses and data analytics**

Circular
Economy

Industrial and urban networks in real life are interconnected.

Successful circular economy practices can only be realized tackling complex relations.

EPESUS facilitate circular economy solutions by adressing industrial and urban sustainability challenges with a holistic approach.