



Ekodenge Company Profile

Ekodenge is an interdisciplinary team of sustainability experts supported by its in-house innovation and software capabilities, providing consultancy, engineering, architecture, and software solution services.



City



Building



Architecture



Industry



**Environmental
Management**



**Digital
Services**



Ekodenge was founded in **1996** to deliver environmental management services to Turkish Ministries so as to align with EU regulations.

Ekodenge has a sister company (Ecowise Ltd) in **London UK since 2016**, working on IT solutions and services for circular economy, smart cities and the digital built environment.

WHY WE DO IT

To provide an innovative, holistic and interdisciplinary solution capacity to handle the environmental, social and economic facets of sustainability related problems at all scales.



HOW WE DO IT

With over 20 years of experience, we seek solutions and strategies that minimize the urban and industrial footprint with holistic life cycle thinking, take advantage of information technologies and deliver convenient, innovative, cost-effective and applicable solutions for sustainability.



WHAT WE DO

Ekodenge develops new generation technologies, architectural designs and integrated solutions in all the market fields it is involved in, based on sustainability targets as well as sectoral and legal requirements.





Drivers

- Sustainability Targets
- Sectoral and Regulatory Needs
- Social Responsibility

R&D

Research and
Innovation Works
and International
Cooperation

Market Services

New Generation
Sustainable
Market Services

Working with and for broad range of stakeholders and clients



City Decision Makers

Decision support towards sustainable and smart cities, software tools and services for circular urban ecosystems

Industrial Facilities and Organized Industrial Zones

Consultancy and engineering services for resource efficiency and circular value chain design

National Organizations and Regulating Agencies

Waste Management, Policy Development and Legislative Approximation, Capacity Development

Developers and Building Owners

Energy and resource efficient building, space and urban area design from concept stage to application design and tender file

Campuses and Urban Networks

Spatial design and strategy development, software tools and services for monitoring, operation optimization and decision support

International Organizations and Development Agencies

Project leadership and consultancy services for international design, capacity building and technical assistance programmes

Building Designers and Urban Planners

Energy and resource efficiency analyses, decision support and concept development services for planners and design offices seeking sustainability consultancy

Research Collaborators

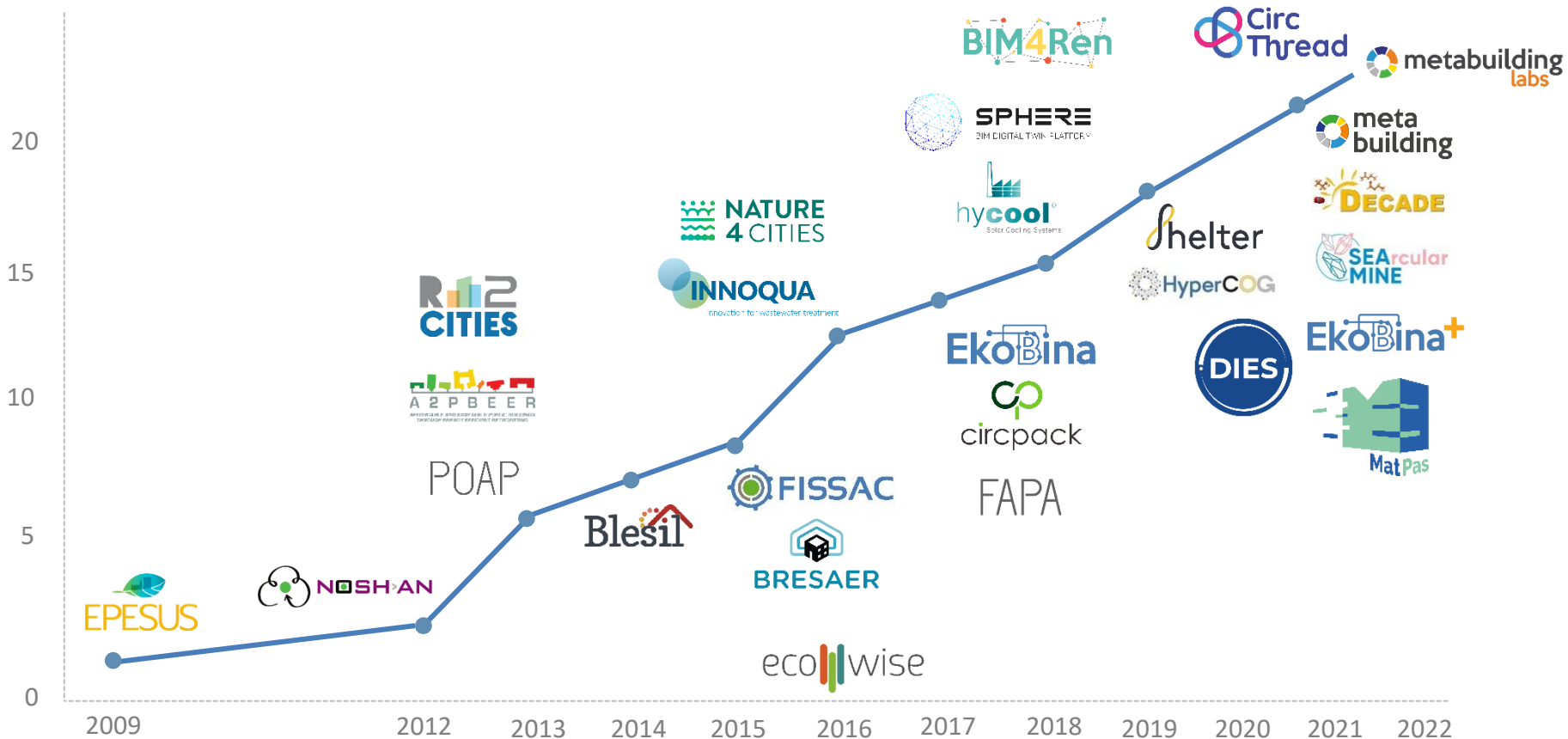
Cooperation for research, innovation and product development, exploitation and emerging services

International partnerships

Collaboration with
250+ project partners
in **30+** countries



Highest number of H2020 projects among Turkish SMEs



Ongoing projects

H2020



IPA



TUBITAK



SUSTAINABLE MANUFACTURING
PROCESSES PLATFORM FOR
GREEN AND DIGITAL
TRANSFORMATION

Danışmanlık



A Low Carbon
Pathway for the
Steel Sector in the
Republic of Türkiye

A Low Carbon Pathway for
the Aluminum Sector in
the Republic of Türkiye

A Low Carbon
Pathway for the Cement
Sector in the Republic of
Türkiye

Market services developed through R&D



Industrial symbiosis consultancy to OIZs and regional development agencies



NBS concept, introduced to a SECAP for the first time, awarded Ekodenge a UNDP funded project



- Energy efficient building retrofitting design and monitoring
- Energy efficient building guideline development



Energy Efficiency in Schools in Turkey Project

Energy Efficiency in Social Housing in Turkey Project



**SUSTAINABLE
MANUFACTURING
PROCESSES PLATFORM
FOR GREEN AND DIGITAL
TRANSFORMATION**

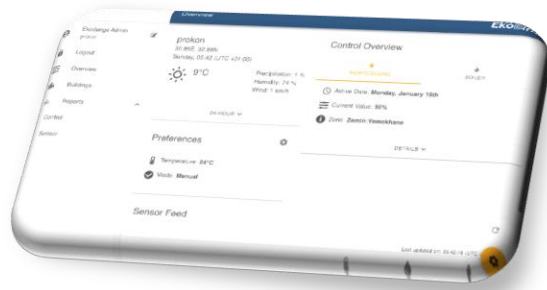
- Industry Technology Comparison Module
- CAT Module
- Green Finance
- Screening Criteria
- Investment Cost Analysis Module
- LCA Module



Reducing Industrial Emissions, National Action plan, necessary guide and software



Building Energy
Management
Platform



carbon
accounting
tool



GHG Inventory and
Mitigation Tracking Tool



External environmental
assessment module
N4C Data model





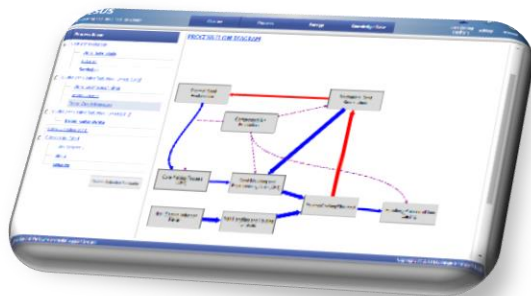
Eco-industrial Park
Environmental Support
System - EPESUS



FISSAC Industrial
Symbiosis Platform &
Industrial Symbiosis



Sustainable Manufacturing
Processes Platform For Green
And Digital Transformation



Above the Threshold Award for a Total of 15 Projects

BMYZITY
ADAPNET
OPTIMISER
BRESAER
FISSAC
INNOQUA
NATURE4CITIES
CIRC-PACK
ARGOS
URBHEAT
UA4FUTURE
HYCOOL
SHELTER
HYPERCOG
DECADE
SEARCULARMINE

Achivement Award For A Total of 5 Projects

BRESAER
FISSAC
INNOQUA
NATURE4CITIES
CIRC-PACK

Encouragement of Participation Award for 2 Projects in Total

R2CITIES
A2PBEER

Awards



The Energy Efficient Land Cadastrate Building, "Greenest Building", **2018**



Green Technology High School
"The greenest completed building" **2019**



- "The company that has been awarded most international funds",
- "The company that has carried the second highest number of research and development projects",
- "First member and over 10 years in research and development"
2018



**HACETTEPE
TEKNOKENT**

Hacettepe University Faculty of Health and Science Library Building, "Eighteen Cycle",
January 2015



World Architecture Community congratulates Ekodenge Architecture for
Hacettepe University Faculty of Health and Sciences New Library Building selected for W.A.
Awards Eighteenth Cycle January 2015.

Süleyman ÖZDEMİR
Ekodenge





| SERVICES



Field Experience

beleñco



CFA
Climate Finance Accelerator

AHİLER
Kalkınma Ajansı
Geleceğe Yön Verir

DİKA
dicle kalkınma ajansı
tigris development agency

- Industrial symbiosis
- Industrial energy management
- Circular economy advisory
- Eco-efficiency and cleaner production
- Life cycle assessment and costing
- Carbon Footprint Assessment
- Resource efficiency recommendations
- Risk Assessment
- Environmental Product Declaration

Reasearch Background



hycool
Solar Cooling Systems

cirpack

FISSAC



ERA-IB
European Research Area
Institute for Sustainable Research

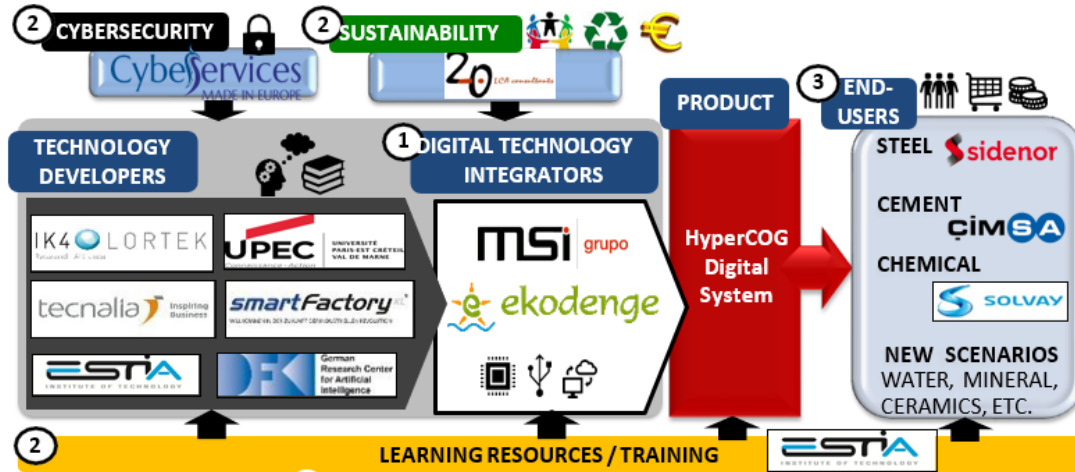
POAP

FAPA

HyperCOG



EPESUS



Ekodenge's responsibilities:

Ekodenge is

- Process data collection and visualization developer (WP4),
- SW integrator of the use-case 2 (cement use case, WP5),
- evaluator of best strategies and developer of learning pack (WP6) and
- LCA expert for sustainability assessment (WP7).

The EU-funded HyperCOG project proposes an advanced industrial cyber-physical system (ICPS) that will increase production performance, limit emissions and energy consumption, and offer lifelong training in digitalisation for workers.



Industry

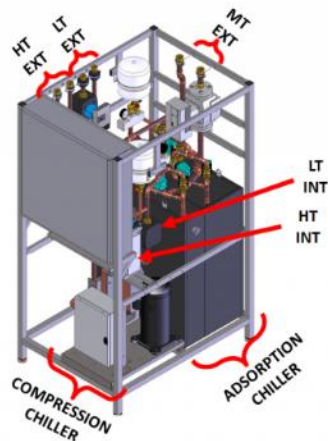
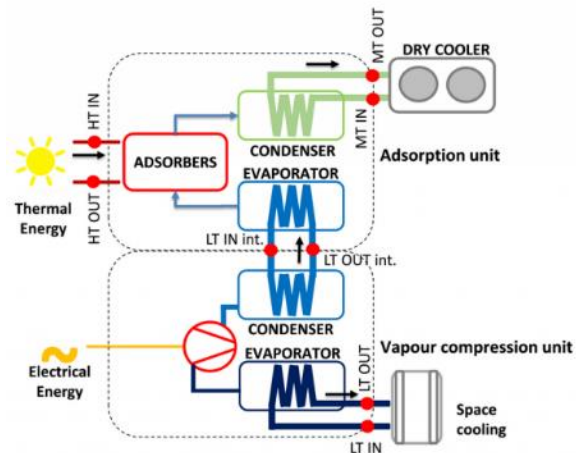
Fostering Industrial Symbiosis for a Sustainable Resource Intensive Across the Extended Construction Value Chain



Ekodenge's responsibilities:

Workpackage Leader

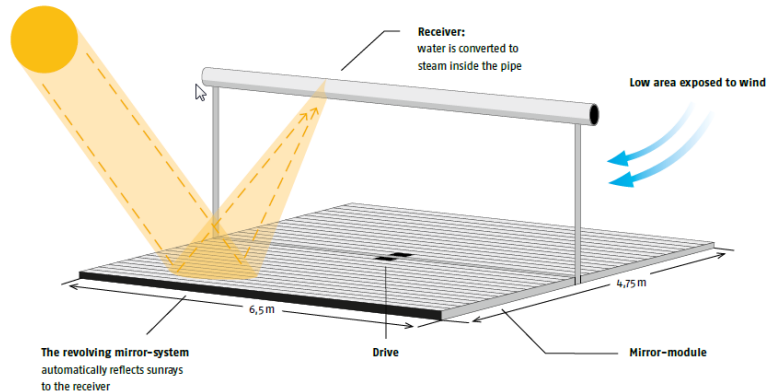
- Digital representation of material supply chain networks in the construction value chain
- Indicator-based evaluation of resource efficiency and environmental impacts of network adjustments
- Opportunity identification for waste valorisation and uptake across industries



Ekodenge's responsibilities:

Partner

- Development of the energy management scenarios of the hybrid heat pump and CSP system with forecasting and optimization capabilities
- Demonstration energy management





Industry



REPUBLIC OF TÜRKİYE
MINISTRY OF ENVIRONMENT,
URBANIZATION AND CLIMATE CHANGE



Determination of Industrial Emissions Strategy of Turkey in Accordance with Integrated Pollution Prevention and Control

Purpose of the Project:

Increasing the technical and institutional capacity of the competent authorities for the harmonious implementation of the IPPC approach in Türkiye in line with the IED

The Role of Ekodenge as a Consortium Partner:

Ekodenge is responsible for all technical activities to develop technical capacity and infrastructure for the implementation of the IPPC approach. These activities are updating the inventory for the IPPC facilities, conducting the IED compliance and cost analyzes for the industry, preparing technical documents for the IPPC implementation, developing an IPPC software, and most importantly, preparing the National Action Plan (NAP).

Contributions to the Industry:

All technical studies is done by contacting with the industries one by one, and all outputs are prepared according to their guidance. Industries which will be directly affected from the NAP and the legislation to be entered into force have started preparations with the DIES Project for the EU policies which will be implemented in the coming years.



Industry

Other Low Carbon Pathway Projects



REPUBLIC OF TÜRKİYE
MINISTRY OF INDUSTRY
AND TECHNOLOGY

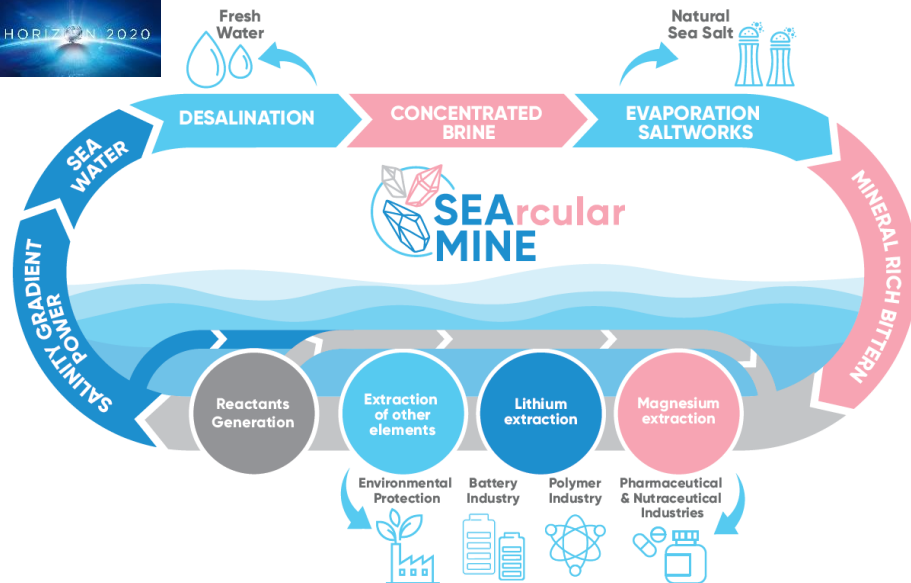
Funding Institution :  **European Bank**
for Reconstruction and Development

Consortium Partners:



With the same Consortium structuring and the funding provided by the EBRD, in addition to the ***Steel Sector***, 2 separate projects have been started for the ***Aluminium and Cement Sectors***.

- A Low Carbon Pathway for the Aluminium Sector in the Republic of Türkiye
- A Low Carbon Pathway for the Cement Sector in the Republic of Türkiye

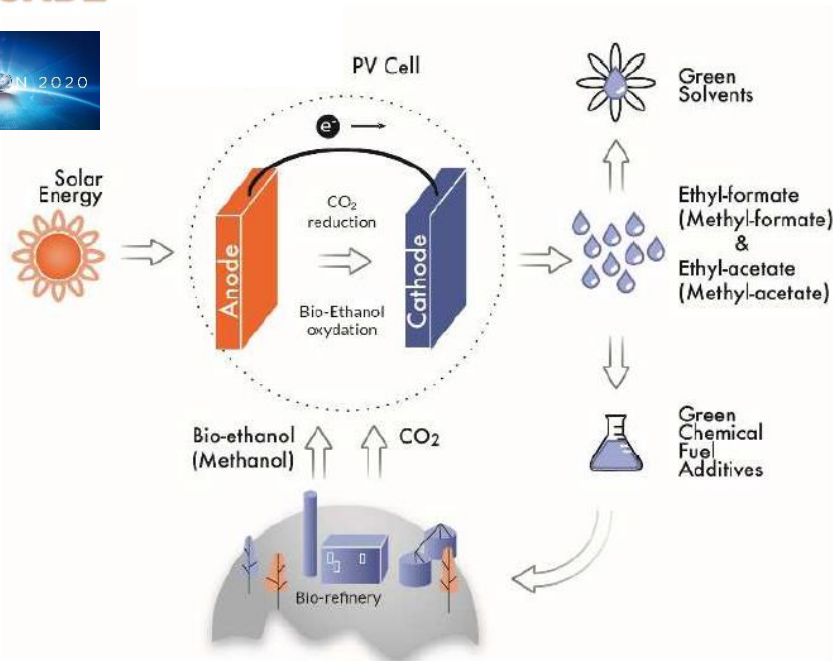


Aim; is to develop sustainable technologies that will provide safe access routes for critical and other raw materials through the cyclical processing of by-products from rich mineral resources such as the sea.

Ekodenge's responsibilities:

Workpackage Leader

- Life Cycle Assessment (LCA) for each technology
- Life Cycle Costing (LCC) for each individual technology
- LCA and LCC studies of the integrated system model
- Lead and support the activities on Human and Ecosystem Health and Safety Status
- Support economic assessment and market analysis
- Support dissemination and communication activities
- Support data collection on bittern resources

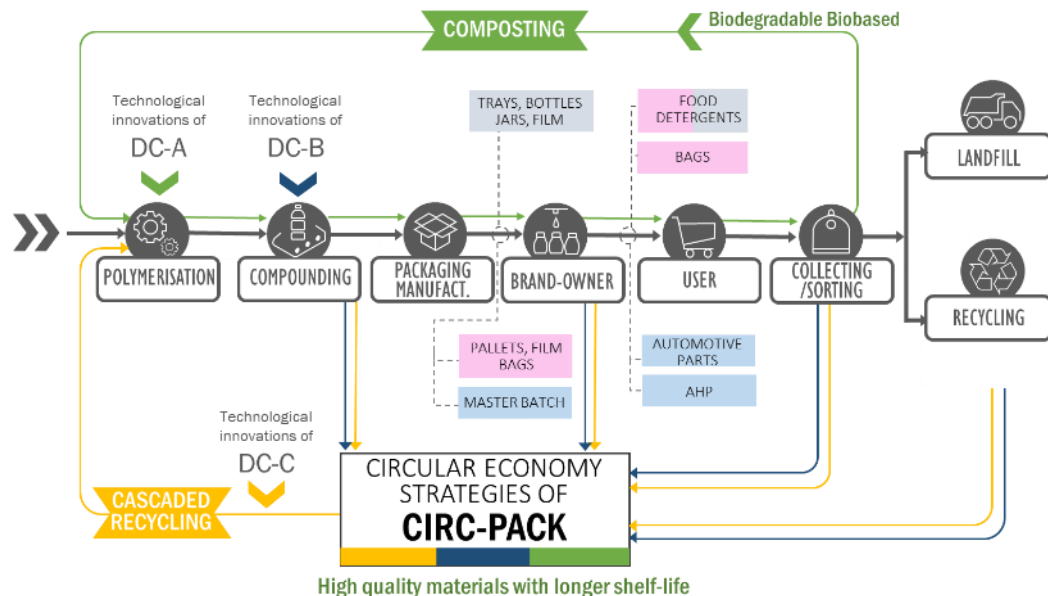


Ekodenge's responsibilities:

Task Leader

- Analysing use case baselines
- LCA and LCC of the PEC process
- Focusing on energy efficiency, cumulative energy demand and global climate change indicators during life cycle assessment

A new approach for the conversion of CO₂, which prevents water oxidation as the anode reaction, to improve the current energy use in the photoelectrocatalytic (PEC) system.



Ekodenge's responsibilities:

Workpackage Leader

- Support on the holistic assessment and system optimisation with data analytics and ICT Platform
- Indicator-based assessment methodology for design and monitoring of industrial symbiosis networks
- Recycled material flow and life cycle analysis for primary, secondary and tertiary packaging in several sectors for sectorial symbiosis at the urban scale



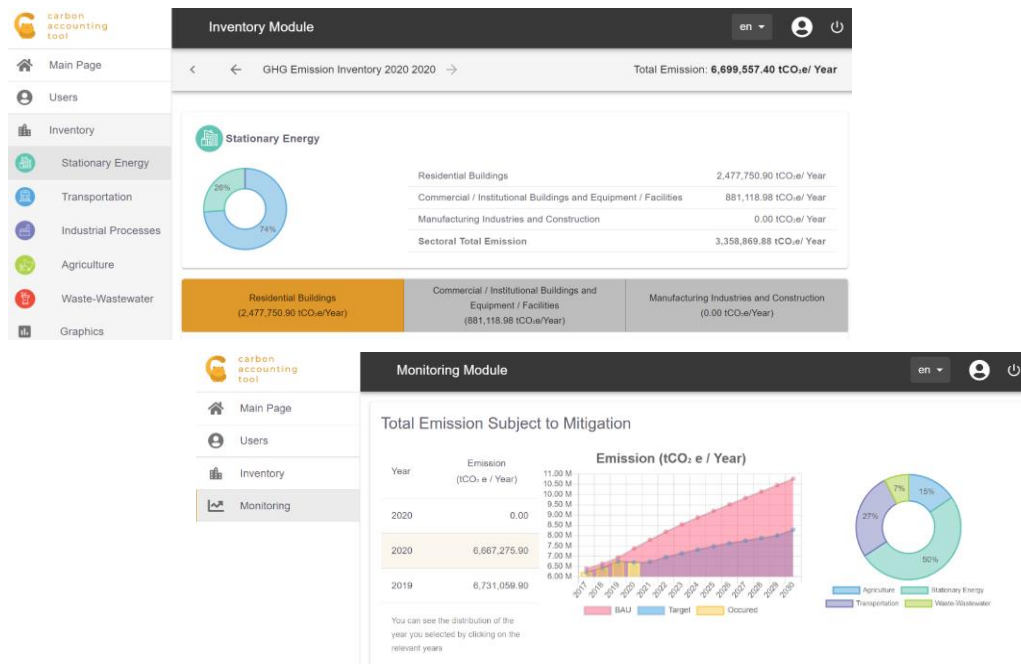
It is a follow-up tool consisting of an **Inventory Module** where sectoral greenhouse gas emissions arising from urban activities can be calculated and a **Monitoring Module** where the progress in reduction targets can be tracked with the change of emissions over the years.

Inventory Calculation Module:

- Emission calculation for different sectors and sub-sectors
- Analysis of results
- Approve-publish feature for supervisor
- Archiving and updating

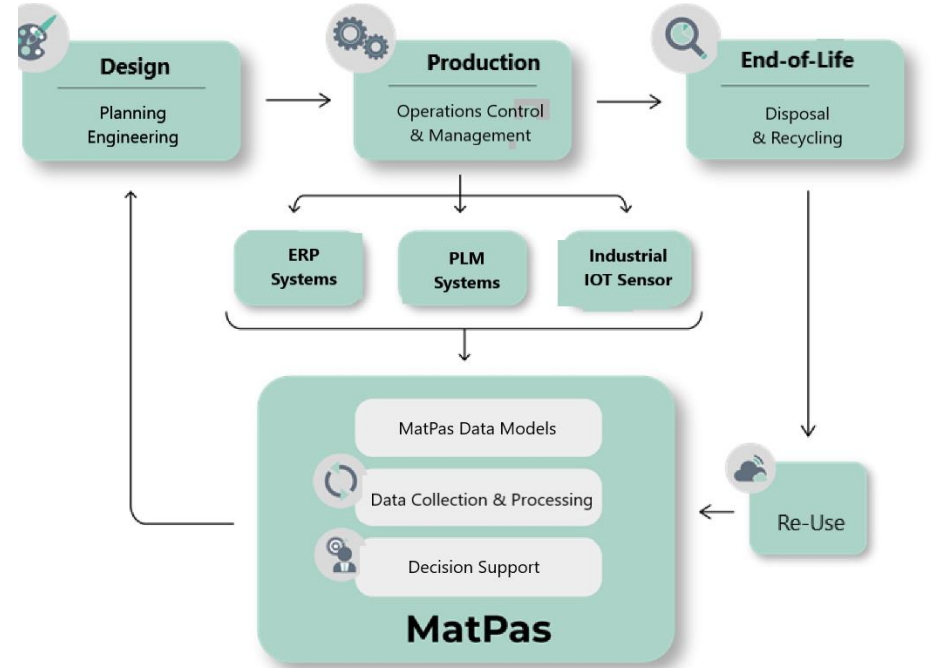
Monitoring Module:

- Follow-up of sectoral and collective targets
- Follow-up of change over the years
- Comparison with current situation scenario and target scenario





- Material Inventory Data Supply from ERP / PLM Systems
- Supplier Data collection service
- Supplier material data compliance check
- Supply chain missing data integration (LCI)
- Facility Material Flows Analysis
- Creating a Standardized Material Passport
- Integrated Pollution Prevention (IPPC) Scorecard
- Recycling Potential Evaluation
- Reuse Potential Evaluation
- Waste costs calculation
- Compatible with SMEs (cost and usage)
- Cross-site Commercial Registry (material and finance tracking)





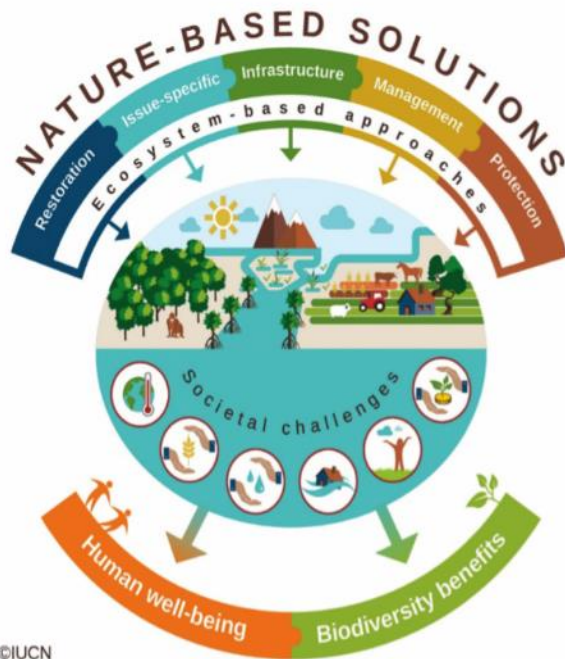
Field Experience



- Sustainable energy strategies for built environment and urban districts
- Sustainable energy and climate action plans
- Developing smart city solutions through ICT platforms
- City assessments using agent-based modelling for resident behaviors and urban metabolism of material flows
- Nature-based solutions impact evaluations

Research Background





Source:
<https://www.iucn.org/commissions/commission-ecosystem-management/our-work/nature-based-solutions>

Ekodenge's responsibilities:

- System integration of NBS platforms and tools
- Development of the holistic assessment framework for NBS
- EPESUS Cities Platform to be utilized for urban sustainability assessment



Cities

Climate Change Action Plans



Güçlü bireyler.
Güçlü toplumlar.

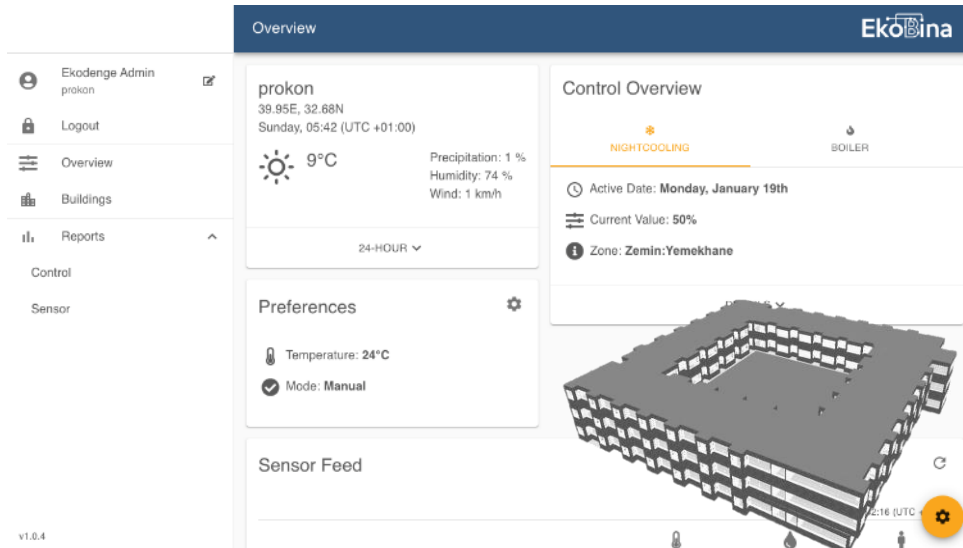


Ekodenge's responsibilities:

- Hatay province greenhouse gas emission inventory and climate change action plan creation
- Providing training to municipal staff
- Web-based calculation and monitoring module development



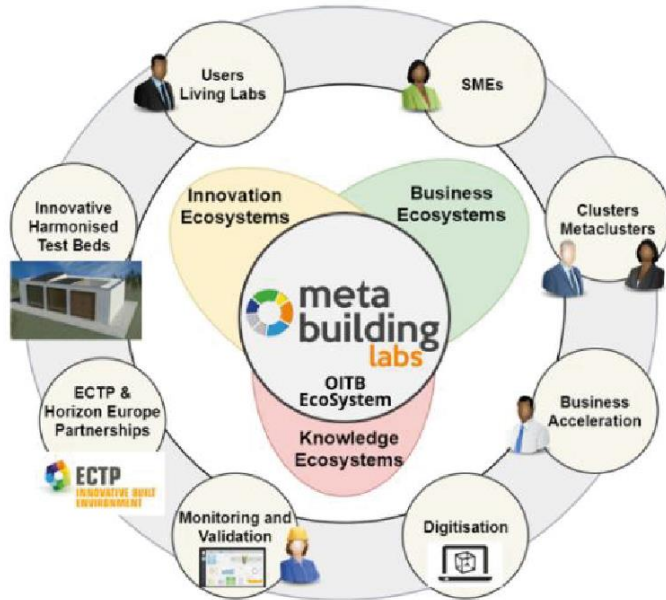
- Building Energy Modelling and Analysis
- Sustainable Building Consultancy
- Building Energy Management
- Commissioning Services
- Energy Auditing Services
- Retrofitting Design



Ekodenge's responsibilities:

- Developing an Energy Management software platform for real-time energy optimization in buildings
- Development of energy optimization algorithms

*The development of the platform is still ongoing through 3 H2020 projects; HYCOOL, BIM4REN and SPHERE.



Ekodenge's responsibilities:

Partner

- Developing MetabuildingLabs (MBLabs) Platform
- Contribute to the innovation ecosystem tasks in Turkey
- Support the architectural design of O3 Building Envelope Testbeds solution
- All pilot activities of Basaksehir Municipality
- Contribute to environmental assessment-related activities in the development of "MBLabs platform digital services development & integration"

MB Labs; It aims to provide access to Open Testbeds (OITB) and an innovation ecosystem for SMEs in the construction industry, reducing barriers to become competitive against big industry players.



BİNALARDA ENERJİ VERİMLİLİĞİNİN
ARTIRILMASI PROJESİ



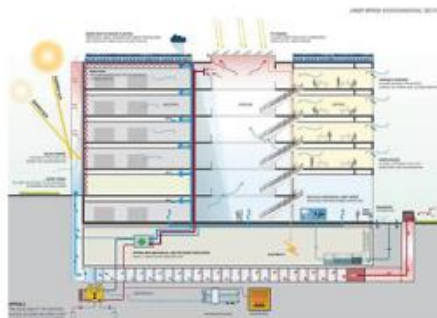
Erasmus+



- Sustainable building design
- Master plan and landscape design
- Construction control and supervision
- Cultural heritage and resilience
- Green building in protected areas
- Interior design



BİNALARDA ENERJİ VERİMLİLİĞİNİN
ARTIRILMASI PROJESİ



Ekodenge's responsibilities:

- Leadership of an international green design consortium

The design of two DEMO Buildings through the Integrated Building Design approach

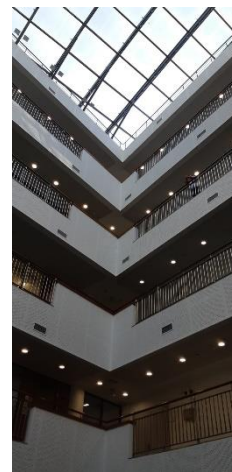
Energy efficiency analyses

Tender preparation for a green public building within Turkish legislation

- Building LCA and LCC

*First public green buildings designed through the Integrated Building Design Approach in Turkey







Architecture

Hacettepe University Faculty of Health and Sciences Library



OSTİM Ecopark Competition – 2nd Prize





Preparation of Integrated Waste Management Plans for Metropolitan Municipalities of Gaziantep, Şanlıurfa and Hatay

Ekodenge's responsibilities:

- Analysis of the existing situation
- Developing integrated solid waste management plans in accordance with EU and national policies
- Solid waste characterization analysis to indicate
- Realistic projections on population and waste generation for each Municipality,
- Planning integrated solid Waste Management strategies of the Municipality

