PROJECT

“Green missions for climate finance: Türkiye-Lithuania collaborative learning for energy-smart municipalities (GM4FINANCE)”

Antalya Metropolitan Municipality's case studies, best practices, and project experiences and Feasible plan on further development and maintenance of the partnerships update and finalize

MAximizing the UPscaling and replication potential of high level urban transformation strategies (MAtchUP)

Grant Programme: Horizon 2020 Programme (Smart Cities Communities)
Total Budget of the Project: ~18 Million € (~1.8 M € for Antalya)
Duration: 72 months (October 2017-October 2023)

MAtchUP's objective is to create and adopt solutions that can turn urban problems into smart opportunities to improve the citizens' quality of life and boost the local economies. The final aim is to create a prosperous and more liveable urban environment for communities.

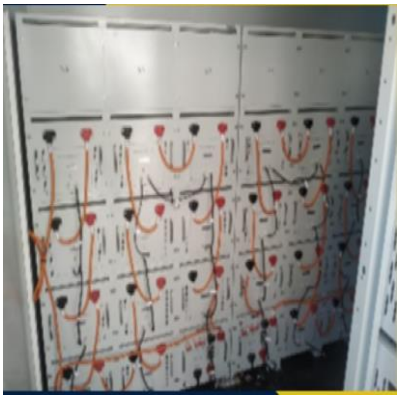
MAtchUP approach is built on three main axes:
- Planning of sustainable urban transformation, which means to get rid of old and inefficient technologies to seize new efficient solutions in the energy, mobility and ICT fields.
- Effective replication and upscaling of smart city solutions by ensuring the convergence of the demand and supply sides.
- Implementation of these upscaling and replication plans to successfully reshape and repaint cities and their communities

The MAtchUP consortium is made of 28 organizations from 8 different countries. Three lighthouse cities (Valencia, Dresden, Antalya) and four follower cities are supported by the expertise of universities and research institutions, SMEs, industrial and non-profit partners. They include research experts, policy makers, industrial partners, investors and dissemination and exploitation experts which basically represent all the targets of MAtchUP.

MAtchUP solutions aims at providing effective qualitative and quantitative impacts on urban environments:
- The city transformation focuses mainly on the intersection of energy and transport excellence enabled by technology: deployment of smart homes and energy efficiency measures to reduce energy consumption and pollution and to increase investments in sustainable mobility and technological integrations
- Should not be forgotten that cities are the closest political level to citizens. A citizen-centric approach is crucial for the success of a smart city. Because of that, MAtchUP activities were highly tailored to citizens who played an active role in the co-creation of new urban strategies.

The Horizon 2020 MAtchUP project, which supports the expansion of smart cities in both Antalya and Türkiye through various smart city applications—including infrastructure, energy, water, lighting, environment, security, smart homes, and integrated technology solutions—is the first implementation of Antalya's Ecological Smart City vision, hosting Türkiye's largest Smart Urban Transformation initiative.

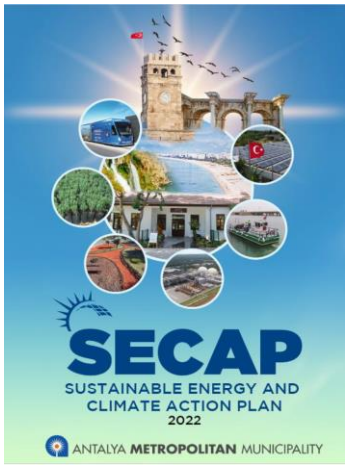
Energy transformation applications at Antalya Metropolitan Municipality Building:
- Installation of Rooftop Solar Power Plant and Energy Storage System (249 kW energy production, 250 kWh storage)
- Replacement of old-type bulbs with LED bulbs, installation of indoor/outdoor air quality (temperature and humidity) sensors, presence sensors, HVAC control system, integration of smart meters measuring electricity consumption for lighting, sockets, HVAC, elevators, and escalators into the public building.
- Transformation of Smart Park Lighting System (Atatürk Culture Park - 350 units)
- Smart Intersections (40 units), Remote Accessible Intersections (61 units), Installation of Traffic Control Center (providing detailed traffic data, signalization data, fault notifications, and traffic density analysis for 101 signalized intersections, enabling real-time optimization of traffic signal timings based on this density).
- Installation and Integration of Electric Vehicles and Charging Stations (1 e-car and 5 e-car charging stations), Electric Scooters and Charging Stations (30 e-scooters and 5 e-scooter charging stations), Electric Motorcycles and Charging Stations (25 e-motorcycles and 2 e-motorcycle charging stations), Electric Buses and Charging Stations (2 e-buses and 1 e-bus charging station).
- Installation of Rooftop Solar Power Plant and Energy Storage System for Antalya Transportation Inc. Antray Building (80 kW energy production, 150 kWh storage)
- Installation of Energy Monitoring and Management System displaying and controlling various measurements and analyses of energy consumption, consumption comparisons, carbon emissions, savings analyses, and invoice management for smart applications and facilities owned by the municipality, Installation of Open Data Portal.

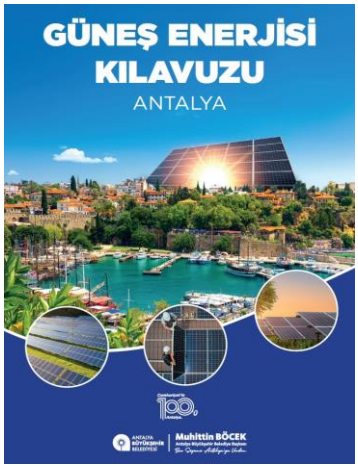






As part of the MAtchUP project, the building's energy class was upgraded from C to B. With the impact of these initiatives, our Municipality has received the Climate-Friendly Institution Certificate.

Within the MAtchUP Project, non-technical activities such as social engagement initiatives, sustainable employment efforts, staff exchange, city mentoring, the creation of smart cities through urban transformation, and the development of innovative business models were also carried out. Thanks to the project, the SEAP prepared for Antalya Metropolitan Municipality in 2012 was updated as a SECAP. "Solar Energy Guide" and "Public Private Partnership Modelling" guidelines has been prepared.





ANTALYA SOLAR SCHOOL

Grant Programme **:** Labour Market Support Programme for Young People Not in Employment, Education or Training (NEETs) (NEET PRO) - IPA
Total Budget of the Project: 216.627,76 €
Duration: 18 months (August 2023-January 2025)

Antalya is exceptionally well-positioned for solar energy production due to its high levels of solar radiation. This advantage contributes to the rapid growth of the city's agricultural and tourism sectors, as well as renewable energy investments. Projects led by the Antalya Metropolitan Municipality play a crucial role in meeting the energy needs of the local population while promoting environmental sustainability. In particular, the agricultural sector is increasingly adopting solar energy for irrigation, which offers economic benefits to farmers and reduces reliance on fossil fuels. This trend not only accelerates the growth of Antalya's solar energy sector but also supports regional development and job creation.

The employment of solar photovoltaic installers, commonly referred to as PV installers, is projected to increase by 51% from 2019 to 2029, which is significantly faster than the average growth rate for all occupations. However, companies in the renewable energy sector that have applied to the Antalya Metropolitan Municipality have reported a notable gap in production and installation in this field. They have indicated difficulties in finding technicians to manufacture solar panels. Although they have offered accelerated training programmes lasting just 7 days, these programmes have proven insufficient to meet the demand.

Antalya Metropolitan Municipality, in partnership with the Turkish Employment Agency (İşkur), Çanakkale University, and Projectx Solar, has launched the Solar School initiative. This program aims to train a qualified workforce in renewable energy technologies, aligning with green economy goals. Specifically, it seeks to provide Basic Solar Energy Systems Training to 200 youth aged 15 to 29 who are "Neither in Education nor Employment (NEET)" and reside in Antalya.

The initiative is designed to increase employment opportunities in the solar energy sector, promote sustainable energy production, and contribute to reducing environmental impacts in areas such as agriculture and tourism in Antalya. By advancing solar energy technologies, the program helps decrease dependency on fossil fuels, marking a significant step toward a greener economy. Additionally, the training and hands-on experiences offered through this initiative will enhance access for young people to employment opportunities in green sectors in the future.

The Antalya Metropolitan Municipality holds a wide range of authority and responsibility, including the training of young people under relevant centres such as the Environment Training and Innovation Centre. Under this initiative, the Solar School has been established within the Environment Training and Innovation Centre, and all practical training was conducted there.

The applicants received 48 days of training on “Solar Panels and Photovoltaic Systems Installation, Maintenance, and Repair” from Çanakkale University. They were also engaged in a 12-day practical training session in groups to enhance vocational qualifications and improve employment rates for young people.

Çanakkale University has developed an online training programme that lasts 48 hours. A total of 190 participants, aged between 15 and 29, enrolled in the Online Theoretical Training. This training was carried out via Çanakkale University's ÇOMUSEM distance education system. Out of the participants, 139 successfully passed the exam and received a certificate approved by Çanakkale University. Additionally, 32 participants who completed the training but did not pass the exam were awarded a participation certificate.

At the kick-off meeting for the Solar School initiative, several companies from the photovoltaic (PV) sector presented their company overviews, working conditions, and the qualities they seek in potential employees. They also provided information to young people about the industry. The goal was to enhance job opportunities for young individuals by fostering one-on-one communication with these companies.

Applied training was initiated for groups of 171 participants who completed the online training over a duration of 12 days for each group. University-approved certificates were awarded to 115 participants who finished the applied training.

The list of these participants was submitted to the Turkish Employment Agency (İŞKUR) to initiate Individual Action Plans (IAP). An individual action plan was created for each participant. This plan encompassed the schools they graduated from, the job fields they were interested in, and any special conditions they had. Based on these factors, job opportunities were offered to the participants following their preferences. .Out of the participants, 85 attended İŞKUR interviews and began the IAP process. Among the 85 NEETs who participated in the IAP process, 31 gained employment, and 15 returned to education.

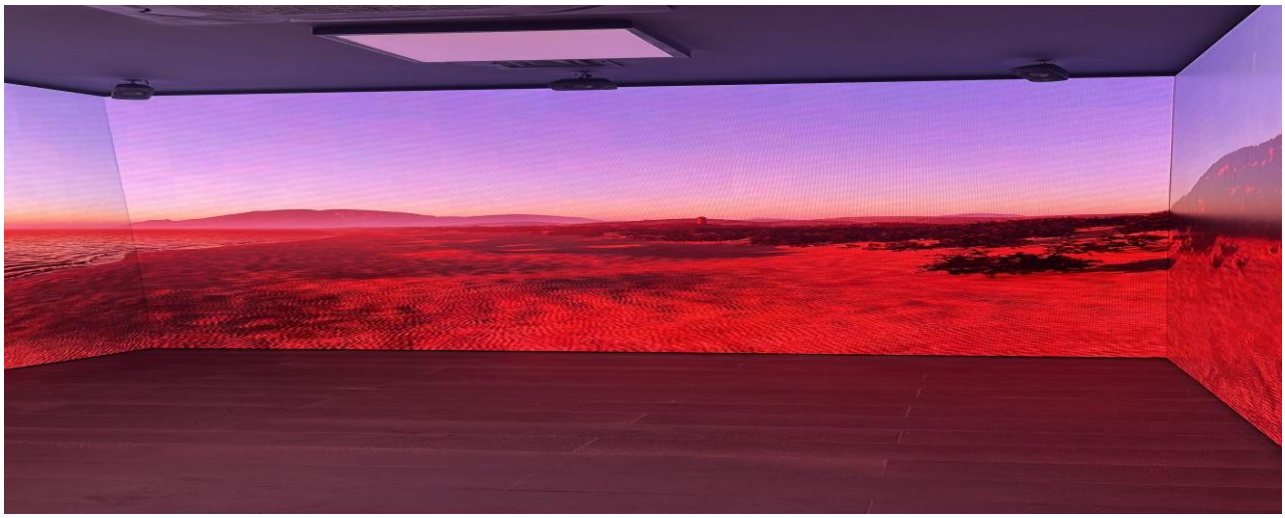
AMM conducts studies aimed at increasing energy production capacity through photovoltaic technology, primarily to enhance the welfare of citizens in Antalya.

Digital Applications for Effective Climate Change Action

Grant Programme : Engagement Global/SKEW
Total Budget of the Project: 248.400,00 € (~200.000,00 € for Antalya)
Duration: 32 months (May 2024-December 2026)

Developed in cooperation with our sister city, the Municipality of Nuremberg, our project "Digital Applications for More Effective Climate Change Action in Antalya" aims to raise awareness about human-induced climate change. Within this scope, a cubic room equipped with an interactive learning environment featuring moving visual content will be established at the Antalya Environmental Education and Innovation Center.

In this cubic room, scenarios and infographics related to human-induced climate change—such as "Use of Fossil Fuels and the Greenhouse Effect," "Destruction of Forests," "Rising Sea Temperatures and Increasing Invasive Species in Coastal Areas," "Growing Waste Volume and Environmental Pollution," and "Increasing Number of Vehicles and Traffic-Related Emissions"—will be presented particularly to student groups.



Public Transport Scenario-Based Decision Support Tool (Cermoni)

Grant Programme : EIT Urban Mobility, Innovation Targeted Project Call
Total Budget of the Project: 377.124,00 € (48.871,00 € for Antalya)
Duration: 9 months (June 2023-February 2024)

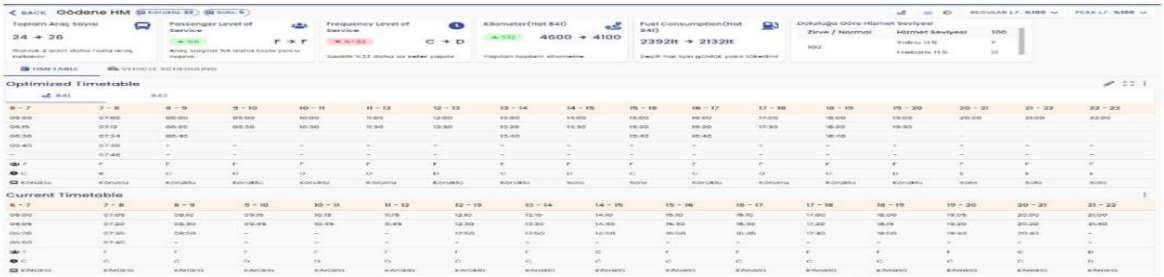
Antalya Metropolitan Municipality has successfully completed the Cermoni project, carried out in partnership with the software company Parabol located in METU Technopark and the Municipality of Vignola from Italy.

Cermoni is an innovative public transport product that has reached the technology readiness level (TRL) 7 level of development. However, public transport operators (PTOs) in the market have expressed a need for scenario-based analysis capabilities, which are currently missing from the product. This activity aims to further develop and test Cermoni with a scenario analysis feature to optimise public transport operations and improve the passenger experience, making the product ready for the market. Through this tool, PTOs can optimise operations based on different scenarios affecting public transport demand, such as regular and irregular events. The tool will provide insights to improve operations, minimise financial losses during demand changes, and enhance the overall passenger experience; allowing them to adapt quickly and efficiently. The activity's objectives include developing an affordable and flexible tool for PTOs, optimising service levels, and minimising financial losses during demand changes.

The pilot implementation of the public transport scenario-based decision support tool is ongoing in Antalya, Turkey and Vignola, Italy with the cooperation of the Antalya Metropolitan Municipality and Comune di Vignola. The pilot test involves the following:

- The collection and analysis of demand data and data related to regular and irregular events, road closures, and public transportation priority roads,
- Implementation of the tool's timetable, vehicle, and crew scheduling modules for public transport operations,
- Evaluation of the tool by Antalya Metropolitan Municipality and Comune di Vignola.

Amacınıza uygun senaryoları seçerek tarifenizi planlayın



Optimize edilmiş çizelgenize göre araç ve sürücü atamalarınızı gerçekleştirin

Micro Mobility Grid Solutions: Modular and Circular Battery and LEV Systems (MiGRiS)

Grant Programme : EIT Urban Mobility, Open Innovation Call
Total Budget of the Project: 895.125,00 € (44.250,00 € for Antalya)
Duration: 12 months (January 2024-December 2024)

The MiGriS project was successfully completed in Antalya and in Dugopolje, Croatia, delivering sustainable urban mobility solutions.

The Micromobility Grid Solutions (MiGriS) project consists of a system integrating different light electric vehicles (LEVs), a swappable battery system and a battery charging station. Within MiGris, consortium members test sustainable and efficient urban mobility solutions through integrable battery and vehicle stations, as well as modular and circular battery systems.

The project combines microgrid charging stations with a set of LEVs, circular and modular swappable batteries, and bidirectional charging capabilities to provide environmentally friendly commerce and transportation options, improve quality of life, and promote social and economic participation. It is led by the Technical University of Berlin and its commercial partner, Constin GmbH.Together with all partners, the Nexus Institute supports pilot planning, contributing to increased social acceptance and market potential. An initial testing of the system will take place in Berlin to ensure operational feasibility, while the pilots with the municipality of Antalya, Turkey and the city of Dugopolje, Split will demonstrate scalability and commercial feasibility through different test scenarios and user groups.

Additionally, crash courses on battery repair and vehicle maintenance and an artificial reality tool are under development. Microgrid charging stations with LEV vehicles equipped with the circular and standardised xPack 100 battery systems offer practical urban mobility solutions. The modularity of the batteries increases efficiency, and bidirectional charging allows for vehicle-grid interaction.


CombiStation
MIGRIS
kickTrike

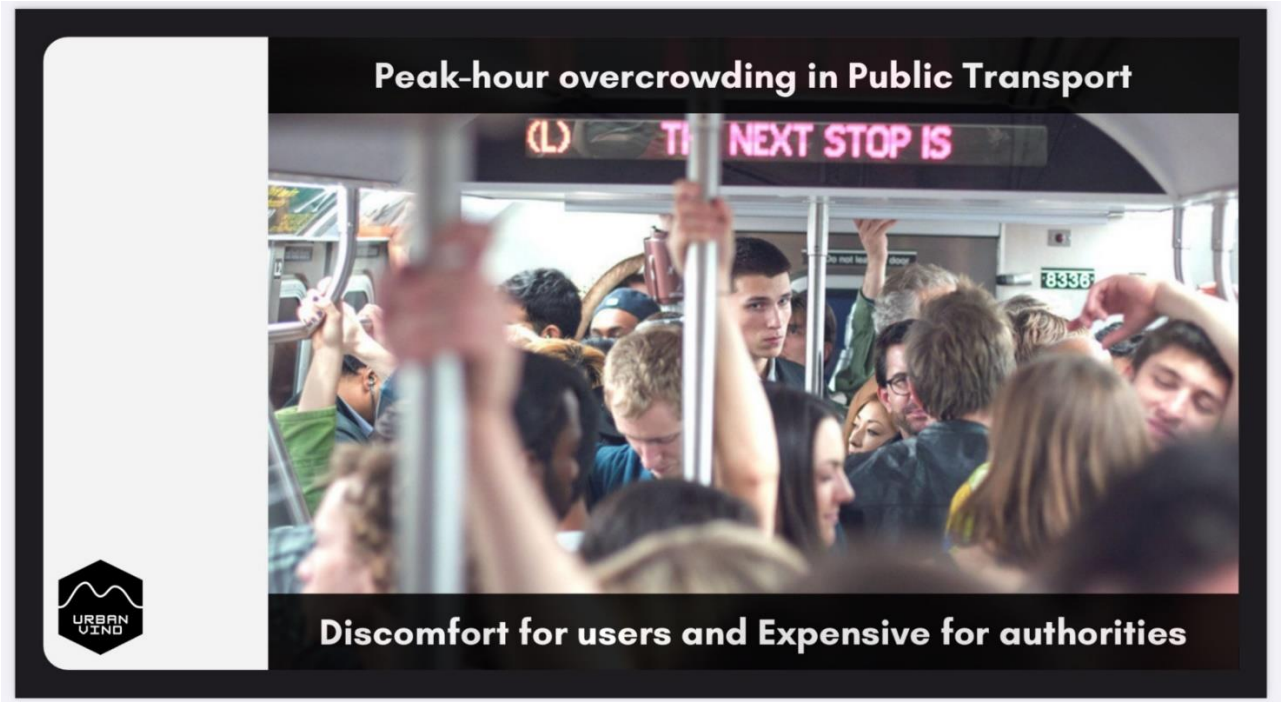
Crowding Data Collection and Origin-Destination Data Estimation using BLE Scanning (UrbanVind)

Grant Programme : EIT Urban Mobility, Open Innovation Call
Total Budget of the Project: 376.750,00 € (41.250,00 € for Antalya)
Duration: 12 months (January 2025-December 2025)

Data collection in public transportation is a challenge in Europe. Cities struggle to gather crucial data for operations and planning. Information such as where people board and exit and how many passengers are sitting on a bus is not readily or easily available, as was found after interviewing 40+ cities and operators. Traditional solutions to count passengers, like Automatic Passenger Counters, are expensive and maintenance-heavy and do not live up to their claimed accuracy. Techniques for determining travel patterns are often inaccurate because cities only know where a passenger boards.

UrbanVind's CrowdFlow offers a solution: accurate, easy-to-deploy, cost-effective software providing real-time vehicle occupancy and passenger flow data. This data is not only useful for a bus operators and planners, but can be used to inform passengers of crowding in public transport and is an enabler for predictive AI tools that optimise public transport.

CrowdFlow uses Bluetooth to detect nearby devices and estimate passenger numbers. This estimation model, tailored to each city, delivers real-time data to public transport authorities. By tracking Bluetooth devices, accurate OD Matrices are generated. Currently in beta, CrowdFlow shows around 80% accuracy. Antalya, Türkiye and Jurmala, Latvia need better vehicle occupancy and passenger flow data and real-time crowding insights to improve their day-to-day operations and to build a better and more accessible network. These two cities will implement CrowdFlow across their bus networks with the goal of bringing Crowdflow to commercial readiness so that it can support more cities across Europe to improve their public transport networks.



Inclusive Governance Models 4 a Greener Transition in the Mediterranean (Gov4GreenMed)

Grant Programme : Mediterranean Basin Cross-Border Cooperation Program (Interreg Next Med)
Total Budget of the Project: 1.4 M € (218.400,00 € for Antalya)
Duration: 24 months (September 2025-August 2027)

Despite notable improvements in waste collection, treatment, disposal, prevention, control and recycling in recent years, municipal solid and food waste remains a critical challenge across most Mediterranean countries. Participatory processes are rarely applied to waste management, and both businesses and citizens are typically not actively involved. Gov4GreenMed will design territorial participatory methodologies on municipal solid waste management and food waste policies through five pilot actions in municipalities across Spain, Italy, Türkiye, Jordan and Tunisia. These initiatives aim to foster effective cooperation between local public authorities and various stakeholders and improve the development of local governance models. The final aim is to facilitate the implementation of shared public services, improve the quality of life of citizens, and support the green transition of Mediterranean municipalities.


mancomunitat LA PLANA

EU Partnership for Türkiye's Local Climate Action Project

Coordinated by the Ministry of Environment, Urbanisation and Climate Change, the project aims to strengthen local decision-making and implementation capacity for climate action, and to enhance local climate action planning capabilities. Within the scope of the project, detailed "Local Climate Change Action Plans (LCCAPs)" will be prepared in six pilot provinces.

During the pilot province selection process, the vulnerability and risk analysis results produced under the "Enhancing Climate Change Adaptation Action in Türkiye" Project also implemented by the Ministry were evaluated for all provinces. As a result of this comprehensive selection process, six pilot provinces were identified: Antalya, Kahramanmaraş, Ordu, Elazığ, Isparta and Kastamonu.

Strategies for Mitigating the Urban Heat Island Effect in Antalya-Turkiye (MUHIR)

Grant Programme : CLIMAAX
Total Budget of the Project: 145.000,00 €
Duration: 22 months (October 2024-July 2026)

The Climate Risk and Vulnerability Assessment Framework and Tool (CLIMAAX) is a four-year Horizon Europe project that provides financial, analytical, and practical support for developing regional climate and emergency risk management plans. CLIMAAX is designed to contribute to the harmonisation and strengthening of climate risk assessment practices and to establish a standard of literature and practice for future European initiatives.

Through open calls, CLIMAAX selects project beneficiaries and invites cities to apply with their proposed project concepts.

As Antalya Metropolitan Municipality, our project proposal for CLIMAAX funding stems from the urgent need to address risks through a methodological framework that enhances our understanding and management of Urban Heat Island (UHI) impacts. The proposed study will:

(1) identify and quantify UHI effects in Antalya, recognising them as a significant risk affecting public health, water resources, and energy consumption;

(2) propose green infrastructure and Nature-Based Solutions (NBS) to mitigate UHI impacts; and

(3) provide a comprehensive assessment of the city's climate vulnerability and risk exposure by using the CLIMAAX toolbox to integrate high-resolution local data with innovative modelling techniques.

AQuatic Urban ecosystems Alive (AQUAlive)

Grant Programme : Driving Urban Transitions Partnership (DUT)
Total Budget of the Project: 1.522.721,61 € (60.972,00 € for Antalya)
Duration: 36 months (January 2026-December 2028)

The project, which aims to generate the tools and knowledge required to implement flood-resilient parks capable of smartly managing floodwaters through Nature-Based Solutions, enhancing biodiversity, and regulating the microclimate, brings together 12 partners from Belgium, Italy, Poland, Portugal, Bulgaria and Türkiye.

Coordinated by the University of Antwerp in Belgium, the project has the following objectives:

1) To identify the current challenges posed by both climate change and urbanisation in the implementation of flood-resilient parks,

2) To develop a framework for promoting biodiversity within flood-resilient parks,

3) To examine the co-benefits provided by this solution,

4) To encourage the co-creation of flood-resilient parks, and

5) To establish a roadmap for the successful implementation of flood-resilient parks across Europe and beyond.

Feasible plan on further development and maintenance of the partnerships update and finalize

Feasible Plan for Further Development and Maintenance of Partnerships

1) Introduction and Rationale

Antalya Metropolitan Municipality has established a strong track record in developing, managing, and sustaining multi-level partnerships through the implementation of numerous EU-funded and international projects, including Horizon 2020, Horizon Europe, Interreg, EIT Urban Mobility, IPA, and bilateral cooperation programmes. These partnerships span local governments, universities, research institutions, private sector actors, NGOs, and international city networks. Building on this experience, a structured and feasible plan is required to further develop, strengthen, and maintain these partnerships in a sustainable manner, ensuring long-term impact beyond individual project lifecycles.

This plan is directly aligned with the overarching project goal **to strengthen the capacities of Turkish local authorities to design and secure finance for climate actions, and to foster collaboration between municipalities in Türkiye and Lithuania for the effective implementation of Sustainable Energy and Climate Action Plans (SECAPs)**. In this context, partnerships are considered a strategic instrument for knowledge transfer, joint capacity building, peer learning, and access to climate finance.

The purpose of this plan is to define practical steps for consolidating existing partnerships, expanding collaboration networks, and ensuring the continuity of cooperation mechanisms that support SECAP design, financing, and implementation, while reinforcing long-term institutional cooperation between Turkish and Lithuanian municipalities.

2) Consolidation of Existing Partnerships

A primary focus will be placed on strengthening partnerships already established through successful projects such as MAtchUP, Solar School, EIT Urban Mobility initiatives, and climate-focused collaborations. These experiences provide a strong foundation for supporting Turkish local authorities in translating SECAP objectives into implementable and financeable climate actions.

To achieve this, Antalya Metropolitan Municipality will:

- Establish a Partnership Coordination Framework within the municipality to ensure institutional memory, continuity, and knowledge transfer related to SECAP preparation, implementation, and monitoring.
- Maintain structured and regular communication with national and international partners, including Lithuanian municipalities, focusing on peer-to-peer exchange on SECAP governance, implementation challenges, and solutions.
- Capitalise on proven cooperation models such as municipality–university–industry partnerships to support evidence-based SECAP actions in areas such as renewable energy, sustainable mobility, and climate adaptation.
- Use completed projects as reference cases to demonstrate technical feasibility, financial viability, and climate impact, thereby strengthening partners' capacity to design bankable climate projects.

This consolidation approach ensures that partnerships actively contribute to strengthening local climate governance capacities and do not end with project closure, but instead evolve into long-term strategic alliances supporting SECAP implementation.

3) Expansion and Diversification of Partnerships

In parallel with consolidation, Antalya Metropolitan Municipality will actively pursue the expansion and diversification of its partnership network to better support climate action planning, financing, and implementation under SECAP frameworks.

Key actions include:

- Strengthening cooperation between Turkish and Lithuanian municipalities through structured exchange programmes, joint workshops, and thematic working groups focused on SECAP priorities such as energy efficiency, renewable energy deployment, sustainable transport, and climate adaptation.
- Identifying new partners with expertise in climate finance, including development banks, energy agencies, and financial institutions, to improve municipalities' capacity to secure funding for SECAP actions.
- Enhancing collaboration with private sector actors and SMEs to accelerate the deployment of market-ready climate solutions and innovative financing models.
- Broadening engagement with research institutions and civil society organisations to support data-driven decision-making and participatory approaches in SECAP implementation.

This expansion will ensure that municipalities are supported by a diverse ecosystem of partners capable of addressing both technical and financial aspects of climate action.

4) Institutionalisation and Capacity Building

To ensure feasibility and sustainability, partnership development will be embedded within the institutional structures of participating municipalities. Capacity building will be a central pillar, directly contributing to the project goal of strengthening Turkish local authorities' ability to design and finance climate actions under SECAPs.

Planned measures are:

- Designation of dedicated municipal focal points for SECAP-related partnerships and international cooperation, ensuring continuity and accountability.
- Joint capacity-building activities with Lithuanian municipalities, including training sessions, staff exchanges, and mentoring schemes focused on SECAP development, monitoring, and financing mechanisms.
- Internal knowledge-sharing processes within municipalities to transfer lessons learned from international projects into local climate action planning.
- Development of standardised tools and guidelines for partnership management, project development, and climate finance applications.

These measures will strengthen institutional readiness and reduce reliance on external consultants, ensuring long-term ownership of SECAP processes.

5) Financial Sustainability and Resource Mobilisation

Securing finance for climate actions is a core component of this plan and a key element of successful SECAP implementation. Partnerships will be leveraged as enablers for access to funding and innovative financing mechanisms.

Actions include:

- Supporting municipalities in identifying and accessing EU, national, and international funding programmes relevant to SECAP priorities.
- Facilitating joint project development between Turkish and Lithuanian municipalities to increase competitiveness in international funding calls.
- Promoting public–private partnership models and blended finance approaches to mobilise additional resources for climate investments.
- Encouraging partner contributions through co-financing, technical assistance, and in-kind support.

This diversified financing approach will enhance municipalities' capacity to move from planning to implementation of climate actions.

- Allocating municipal budget lines for strategic international cooperation activities to ensure baseline operational continuity.

This approach will enhance financial resilience and reduce risks associated with funding gaps between projects.

6) Monitoring, Evaluation, and Long-Term Engagement

A structured monitoring and evaluation approach will ensure that partnerships effectively contribute to SECAP implementation and capacity strengthening objectives.

Through a structured, institutionalised, and resource-efficient approach, Antalya Metropolitan Municipality will further develop and maintain its partnerships in a feasible and sustainable manner. This plan ensures that partnerships remain dynamic instruments for innovation, resilience, and inclusive urban transformation, supporting Antalya's vision as a leading ecological and smart city at national and international levels. B**y consolidating existing collaborations, expanding cooperation between Turkish and Lithuanian municipalities, strengthening institutional capacity, and improving access to climate finance, the plan ensures that partnerships become long-term enablers of sustainable energy and climate action.**