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CLIMPS Project

Work Package 1: Mapping – Current Situation and Needs Analysis Study

Good Practices Booklet

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Context

Reference of the call for proposals	EuropeAid/173144/ID/ACT/TR
Title of the call for proposals	Town Twinning Between Türkiye and EU – II (Twinning for a Green Future) Grant Scheme
Name of the lead applicant	Kocaeli Department of Investment Monitoring and Coordination
Number of the proposal	TR2020/DG/01/A2-01/124
Title of the action	CLIMPs - Twinning for 2030 Climate Change Action Plan Model in Industrial Manufacturing Platforms
Location of the action	Türkiye – Kocaeli; – Lithuania - Mazeikiai; Kaunas
Duration of the action	12 months



Introduction

The CLIMPs project is a groundbreaking initiative aimed at fostering climate resilience and promoting sustainable practices in industrial and community sectors. Focused on the cities of Mažeikiai (Lithuania), Kaunas (Lithuania) and Kocaeli (Türkiye), the project aims to address the shared challenges of climate change adaptation.

Led by the Kocaeli Department of Investment Monitoring and Coordination (DIMC) as the coordinating partner, and supported by Mažeikiai District Municipality (MDM), Kocaeli Chamber of Industry (KOSANO), and the Baltic Education Technology Institute (BETI), the project is co-financed by the European Union.

The project is built around five strategic objectives (SOs):

- **SO1:** Identifying the current state, needs, and potentials of Industrial Manufacturing Platforms (IMPs) regarding climate change adaptation in partner cities and countries.
- **SO2:** Enhancing the capacity of IMPs to mitigate climate impacts and prepare for adverse climate-related events through a strategic planning approach.
- **SO3:** Promoting the internalization of the European Union's Green Deal policy among IMPs in partner countries and fostering the exchange of knowledge and good practices.
- **SO4:** Establishing a sustainable communication and cooperation network focused on "climate change and green industrial manufacturing," which can be utilized for long-term collaboration in addressing various climate-related challenges.
- **SO5:** Raising awareness about climate change within society, particularly among young people, to prepare the future generation of business leaders, decision makers, and entrepreneurs.

Through these strategic objectives, the CLIMPs project seeks to advance climate resilience and sustainable industrial practices, not only in the partner cities but also as a model for broader application in similar regions.



Survey Activity and Collection of Good Practices

A core component of the CLIMPs project was the survey activity conducted in the cities of Mažeikiai (Lithuania), Kaunas (Lithuania) and Kocaeli (Türkiye) between 14 October, 2024 and 2 November, 2024. This comprehensive study aimed to assess the climate adaptation and carbon footprint reduction efforts of Industrial Manufacturing Platforms (IMPs), as well as gather insights from decision makers and youth. The survey sought to identify barriers, opportunities, and successful practices while exploring stakeholder expectations and needs for climate action at the local level.

One of the key outcomes of the survey activity was the collection of good practices, defined as effective, innovative, and replicable approaches that have demonstrated tangible results in addressing climate change. These practices showcase how organizations and communities are tackling pressing environmental challenges, from renewable energy adoption to sustainable waste management and reforestation initiatives. By sharing these examples, the CLIMPs project not only highlights achievements but also provides a framework for other regions and sectors to implement similar initiatives.

This booklet compiles five exemplary good practices identified through the surveys. Each practice is presented with detailed information, including implementation processes, challenges, and outcomes. Together, these examples underline the importance of collaborative efforts, technical innovation, and localized solutions in the fight against climate change.



Green Transformation at GGOSB: Adapting to the European Green Deal through Carbon Footprint and Greenhouse Gas Inventory Calculations

General information

Location: Kocaeli, Türkiye

Timescale: March 2023 - September 2023

Organization: Kocaeli Gebze Güzeller Organized Industrial Zone (GGOSB)

Summary of the Practice

The GGOSB initiated this good practice to align with the European Green Deal and Türkiye's Green Deal Action Plan¹. The initiative provided consultancy services and structured processes to calculate, monitor, and report corporate carbon footprints and greenhouse gas inventories under the ISO 14064-1 standard. The project aimed to raise awareness of carbon reduction among firms and mitigate potential negative impacts of border carbon regulations on their competitiveness.

Objectives

- Increase awareness of carbon emission reduction among participating firms.
- Enhance the competitiveness of industrialists by aligning with the European Green Deal.
- Develop actionable roadmaps for calculating and managing greenhouse gas emissions.

Detailed Information

The Gebze Güzeller Organized Industrial Zone (GGOSB) has pioneered an exemplary initiative to enhance climate change adaptation and mitigation efforts within its member firms. This practice focused on assisting companies in measuring, monitoring, and reducing their greenhouse gas (GHG) emissions, thereby aligning their operations with the European Green Deal and Türkiye's Green Deal Action Plan. Recognizing the

¹ <https://www.ticaret.gov.tr/dis-iliskiler/yesil-mutabakat>



increasing importance of environmental accountability in global trade, GGOSB selected ten member firms to participate in a comprehensive training and consultancy program.

The initiative utilized the globally recognized ISO 14064-1 standard to calculate corporate carbon footprints, ensuring reliable and actionable data. Through workshops and tailored consultations, participating companies gained the skills to develop emission reduction strategies and prepare for compliance with new regulations. These efforts also aligned with GGOSB's goal of achieving Green Organized Industrial Zone (Green OIZ) certification, a hallmark of environmental sustainability.

GGOSB's approach extended beyond training, providing firms with customized roadmaps that detailed steps for implementing effective emission reduction strategies. By fostering a collaborative environment, the practice encouraged peer learning and set a benchmark for industrial zones seeking to integrate sustainability into their operations. This initiative not only reduced environmental impact but also strengthened the global competitiveness of GGOSB member companies by preparing them for future regulatory challenges and market demands.

Stakeholders and Beneficiaries

- **Primary Stakeholders:** GGOSB Management and participating firms.
- **Beneficiaries:** Industrialists within the Organized Industrial Zone.

Resources Required

- Financial support of 180,000 TL from the East Marmara Development Agency (MARKA) Technical Support Program.
- Technical expertise for training and data assessment.

Results and Impact

- Enabled firms to calculate their carbon footprints for the first time.
- Enhanced the region's scoring in the Green Organized Industrial Zone (Green OIZ) process.
- Raised awareness about sustainable practices among participating industrialists.



Challenges and Lessons Learned

The primary challenge faced during the implementation of this practice was the lack of accurate and systematically recorded data. This issue hindered the initial stages of carbon footprint calculations, as many companies did not have the necessary baseline data readily available. However, addressing this challenge highlighted the importance of establishing robust data management systems to support environmental monitoring efforts.



More information is available on: www.ggosb.com.tr



Green Transformation in Ports with Twin Transition Projects

General information

Location: Dilovasi, Kocaeli, Türkiye

Timescale: 2022 - Ongoing

Organization: Poliport Chemistry Industry and Trade Inc.

Summary of the Practice

This practice centers on leveraging digital and green transformation initiatives to improve operational efficiency and environmental performance at Poliport, one of Türkiye's largest chemical storage terminals. Through the implementation of advanced systems, renewable energy usage, and Green Port Certification standards, the organization has significantly optimized its logistics operations and sustainability practices.

Objectives

- Enhance operational efficiency through digital and automated systems.
- Comply with environmental standards such as Green Port Certification and CDP Climate Change Reporting.
- Strengthen customer and investor confidence by showcasing innovation and sustainability.
- Reduce environmental impacts through resource efficiency and renewable energy adoption.

Detailed Information

Poliport's Green Transformation initiative was implemented as part of its commitment to continuous improvement and adherence to internationally recognized standards, including ISO 9001, ISO 14001, ISO 45001, ISO 50001, and ISO 14064. This project addresses the growing need for digital and green transformation in alignment with Türkiye's Green Deal Action Plan and climate change strategies. Challenges stemming from manual processes, gaps in regulatory compliance, and increasing customer and investor demands for sustainability and digital solutions underscored the necessity for this initiative.

The Terminal Automation System (TOS) Project emerged as a cornerstone of this effort, aimed at enhancing operational efficiency and strengthening environmental and legal



compliance. Complementary projects have been launched to meet and exceed Green Port Certification standards, such as achieving over 50% usage of electric handling equipment and establishing electric vehicle charging stations in compliance with EMRA regulations. Additionally, initiatives like rainwater harvesting and investments in renewable energy have contributed to resource conservation and carbon footprint reduction. For instance, the share of renewable energy usage rose from 50% in 2021 to 70% in 2023, with a target of 100% by 2025.

Stakeholders and Beneficiaries

- **Stakeholders:** Port operators, customers, investors, regulatory bodies, and local authorities.
- **Beneficiaries:** Internal teams benefit from efficiency gains, and external stakeholders receive reliable, sustainable services.

Resources Required

In 2022, Poliport allocated approximately \$6.5 million for modernization and green initiatives. This includes \$100,000 for SAP4HANA (an enterprise resource planning software for large enterprises) and TOS implementation and \$5.5 million for expanding storage capacity and adopting sustainable technologies.

Results and Impact

- Renewable energy usage increased from 50% in 2021 to 70% in 2023, reducing carbon emissions.
- Paper consumption and labor costs decreased through digital workflows.
- Improved customer satisfaction and investor confidence through transparent reporting and strong environmental performance.

Challenges and Lessons Learned

One of the key challenges encountered during the implementation of Poliport's Green Transformation initiatives was integrating advanced digital platforms like the Terminal Automation System (TOS) with existing legacy systems. This required a high degree of technical expertise and significant adjustments to operational workflows. Additionally, adapting the workforce to automated systems posed challenges, necessitating extensive training programs to ensure that employees could effectively transition to and embrace the new technologies. The lack of accurate and systematically recorded data further complicated the process, highlighting the need for robust data management systems.



Through this initiative, Poliport learned that phased implementation of digital systems is critical for smooth adaptation and operational continuity. Gradual integration allows for identifying and addressing technical issues in a manageable way.



More information is available on:

<https://www.poliport.com/en/index-en.html>

https://www.polisanholding.com/pdf/PolisanHolding_Sustainability-Report-2023_8c761.pdf

<https://www.aa.com.tr/tr/isdunyasi/holding/poliporttan-modernizasyon-yatirimi-ile-kapasite-artirimina-5-5-milyon-dolarlik-yatirim/684006>



Recycling Wastewater for Process Water in Industrial Refineries

General information

Location: Kocaeli, Türkiye

Timescale: Since 2015 – Ongoing

Organization: Turkish Petroleum Refineries Corporation (TÜPRAŞ)

Summary of the Practice

This practice focuses on reducing raw water consumption by recycling wastewater discharged by Körfez Municipality and using it as process water in the Izmit Refinery. The initiative is aligned with the increasing need to conserve water resources globally and addresses Türkiye's anticipated water stress issues. By investing in advanced treatment technologies, the refinery has made significant progress toward sustainable water management.

Objectives

- Reduce dependence on raw water by utilizing recycled wastewater for refinery processes.
- Contribute to the conservation of critical water resources.
- Set a precedent for other organizations to adopt similar sustainable practices.

Detailed Information

Water scarcity is a pressing global issue, with Türkiye identified as a country likely to experience water stress. To address this, TÜPRAŞ initiated the reuse of wastewater discharged into the Marmara Sea by Körfez Municipality. The project involved the installation of advanced membrane treatment systems in 2015, transforming this wastewater into process water for refinery operations. The practice demonstrates technical feasibility, environmental responsibility, and operational sustainability.

The implementation process included detailed feasibility studies, negotiations with stakeholders, and significant investments in treatment infrastructure. The project stands out as the first of its kind in Türkiye, emphasizing the importance of protecting raw water resources while meeting the operational needs of a large-scale industrial facility.



Stakeholders and Beneficiaries

- **Stakeholders:** TÜPRAŞ, Körfez Municipality, and local environmental authorities.
- **Beneficiaries:** Industrial operators, local communities benefiting from water conservation, and the broader environmental ecosystem.

Resources Required

The practice required substantial financial investment for membrane treatment technology and related infrastructure. It also necessitated specialized human resources for feasibility studies, implementation, and ongoing operations.

Results and Impact

This innovative approach significantly reduces raw water consumption in refinery processes, contributing to water conservation and operational sustainability. The project's scale and success make it an exemplary model for other industries, showcasing the potential of advanced water recycling technologies in mitigating environmental challenges.

Challenges and Lessons Learned

The implementation of this groundbreaking project presented unique obstacles, primarily due to the variable properties of the wastewater used as input. As the first initiative of its kind in the country, these operational challenges required innovative solutions and technical expertise to maintain efficiency and ensure the system's success.

This experience offered valuable insights, underscoring the importance of thorough planning and adaptability in pioneering environmental initiatives. It demonstrated the need for systems capable of managing input variability and highlighted the role of knowledge-sharing and benchmarking to guide future projects in similar contexts.

More information is available on: <https://tupras.com.tr/en/tupras-reports>



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Reforestation Initiatives for Carbon Sequestration

General information

Location: Mazeikiai, Lithuania

Timescale: Since 2021 – Ongoing

Organizations: “Misku Darbai Ltd.”, and “Dujoda Ltd”

Summary of the Practice

This practice involves reforestation initiatives aimed at mitigating climate change by restoring degraded ecosystems, enhancing biodiversity, and sequestering carbon. Activities include planting native tree species, managing reforestation sustainably, and collaborating with local communities and stakeholders. The initiatives provide socio-economic benefits while addressing environmental challenges.

Objectives

- Restore degraded ecosystems and improve biodiversity.
- Sequester carbon to combat climate change impacts.
- Engage local communities and raise awareness about forests' roles in climate change mitigation.
- Deliver long-term environmental and socio-economic benefits.

Detailed Information

Reforestation initiatives are a critical response to environmental challenges such as deforestation, biodiversity loss, and increasing carbon emissions. This practice was initiated to restore degraded ecosystems, enhance carbon sequestration, and support local biodiversity. By planting native tree species in degraded or deforested areas, the initiative ensures ecological compatibility and long-term sustainability. Additionally, the projects incorporate sustainable forest management practices, including monitoring tree growth and maintaining soil health.

The initiatives are implemented in collaboration with local governments, environmental organizations, and community groups. This multi-stakeholder approach ensures that reforested areas are maintained effectively and contribute to the region's overall ecological balance. Educational and awareness campaigns are also conducted to



highlight the importance of forests in climate change mitigation, fostering greater community engagement and participation.

Furthermore, these initiatives not only address environmental concerns but also provide socio-economic benefits, such as job opportunities for local workers and volunteers during planting and maintenance activities. The restored forest areas improve air and water quality, regulate water flow, and create habitats for diverse wildlife species. The projects also aim to strengthen ecosystems' resilience to climate change impacts while enhancing the aesthetic and recreational value of green spaces for surrounding communities.

Stakeholders and Beneficiaries

- **Stakeholders:** Local governments, environmental organizations, forestry and manufacturing businesses.
- **Beneficiaries:** Local communities and wildlife species dependent on restored habitats.

Resources Required

- **Financial Resources:** The initiatives were co-financed by project activities, emphasizing the reliance on external funding. The required budget varies depending on the specific project scope and goals.
- **Human Resources:** Forestry experts, local workers, and volunteers.
- **Tools and Equipment:** Planting tools, irrigation systems, and monitoring technologies such as GIS (geographical information system) mapping.

Results and Impact

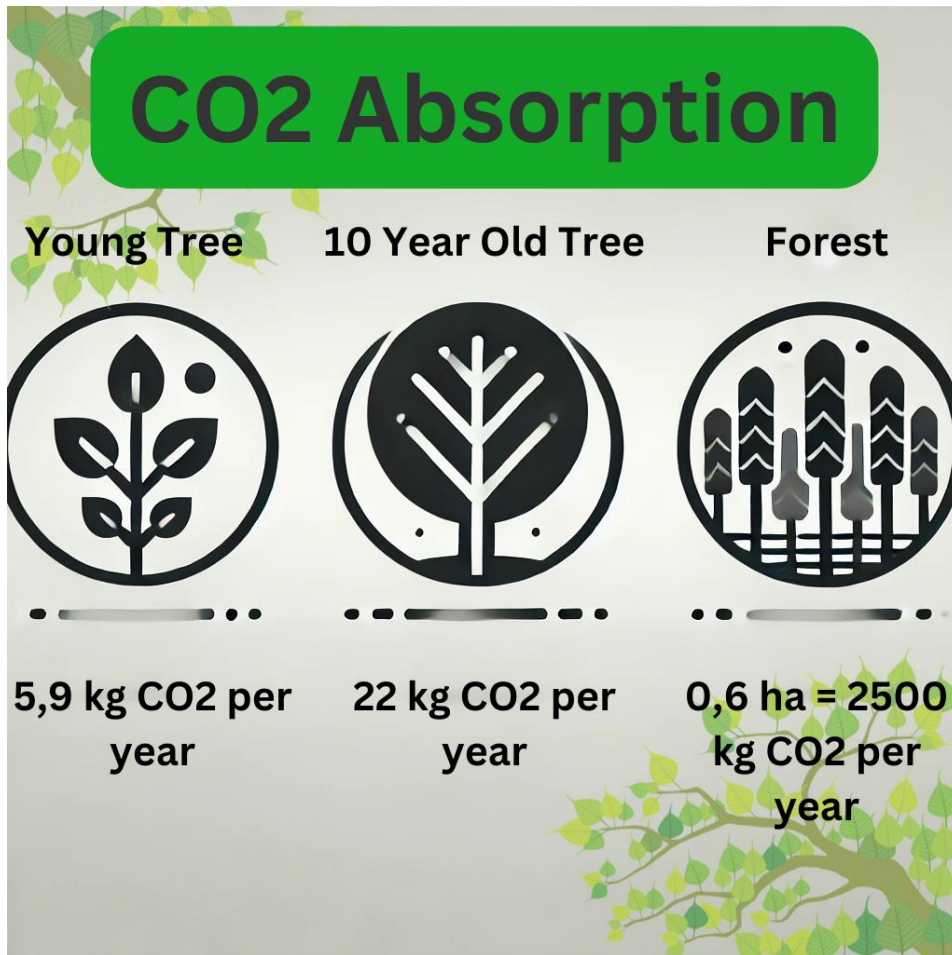
Reforestation efforts have successfully enhanced carbon sequestration, reduced soil erosion, and improved biodiversity in affected areas. These initiatives have strengthened ecosystems' resilience to climate change, improved water retention, and contributed to cleaner air.

Challenges and Lessons Learned

While implementing reforestation initiatives, several challenges arose, such as the limited availability of suitable land for large-scale efforts and the high initial costs of setup and maintenance. Securing long-term stakeholder commitment and sustainable funding streams also presented significant hurdles, requiring strategic planning and resource allocation.



However, valuable lessons were learned through these efforts. Collaboration with local communities emerged as a key success factor, fostering stakeholder buy-in and effective project execution. Continuous monitoring was critical for assessing growth and carbon sequestration effectiveness. Tailored funding mechanisms and incentives played an instrumental role in accelerating progress and ensuring broader engagement from stakeholders.



More information is available on: <http://miskodarbai.lt/?lang=en>

Innovative Heat Recovery Solutions for Energy Efficiency and Environmental Sustainability

General information

Location: Mazeikiai, Lithuania

Timescale: Ongoing

Organization: Pieno Zvaigzdes Ltd., a leading dairy processing company in Lithuania, focused on sustainable and innovative practices

Summary of the Practice

Pieno Zvaigzdes Ltd. has implemented advanced heat recovery solutions to address high energy costs and environmental challenges. By capturing surplus heat from processes such as ammonia vapor compression, whey processing, and air compression, the company reuses this energy for water heating, milk processing, and domestic heating. These efforts enhance energy efficiency, reduce operational costs, and align with sustainability goals.

Objectives

- Enhance energy efficiency and reduce energy costs.
- Improve environmental performance and reduce carbon footprint.
- Optimize surplus heat utilization to prevent energy waste.
- Comply with sustainability standards and enhance competitiveness.

Detailed Information

Pieno Zvaigzdes Ltd. operates in the energy-intensive dairy processing sector and recognized the need to address surplus heat generated during production processes. The practice involves recovering surplus heat from ammonia vapor, whey heating, and air compressors and reusing it for hot water production, milk heating, and domestic heating needs. This approach not only reduces energy waste but also lowers operational costs and enhances environmental performance.

By integrating heat recovery systems into its production workflows, the company has improved energy efficiency while aligning with environmental sustainability goals. The initiative demonstrates how surplus resources can be effectively utilized to minimize costs and environmental impacts, offering a replicable model for similar industries.



Stakeholders and Beneficiaries

- **Stakeholders:** Operational teams, environmental compliance bodies, and sustainability advocates.
- **Beneficiaries:** The company, through cost savings and sustainability, and the broader community, via reduced emissions and more sustainable practices.

Resources Required

- **Financial Resources:** Capital investment for heat recovery systems, co-financed through internal funds and project budgets.
- **Technical Resources:** Specialized equipment for capturing and reusing surplus heat from ammonia vapors, whey processes, and air compressors.

Results and Impact

- Significant reduction in energy consumption by reusing surplus heat.
- Decreased reliance on external energy sources, leading to cost savings.
- Improved environmental performance and reduced carbon footprint.
- Demonstration of a circular production system, aligning with sustainability objectives.

Challenges and Lessons Learned

The implementation faced challenges, including the high cost and complexity of surplus heat recovery. These issues highlighted the importance of efficient system design from the outset to maximize energy reuse and cost-effectiveness. Lessons learned emphasize the critical role of innovation and a systematic approach to integrating sustainability in industrial processes.

More information is available on: <https://pienzvaigzdes.lt/lt/lt/content/36-aplinkosauga>



Conclusions

The **CLIMPs Good Practices Booklet** demonstrates how innovative strategies can drive climate resilience and sustainability across industrial and community sectors. The five practices highlighted within this booklet—spanning renewable energy adoption, wastewater recycling, reforestation, digital transformation, and heat recovery systems—represent actionable solutions to climate challenges.

Each practice showcases tangible outcomes, such as reduced carbon emissions, improved energy efficiency, water conservation, and enhanced biodiversity. These results underscore the importance of integrating environmental sustainability with operational excellence, particularly in regions like Lithuania and Türkiye, which face unique challenges tied to their geographical, economic, and regulatory contexts.

The lessons learned from these initiatives emphasize the need for collaboration among diverse stakeholders, including businesses, local governments, and communities. Success factors, such as the use of advanced technologies, strategic planning, and robust stakeholder engagement, provide replicable models for other regions and industries. Additionally, the challenges faced—ranging from high initial costs to data management gaps—highlight areas requiring further innovation and support.

The booklet aims to inspire broader adoption of these good practices by demonstrating their feasibility and effectiveness. As regions strive to align with global climate goals, such as the European Green Deal, these examples serve as a roadmap for achieving measurable progress toward sustainability. Moving forward, the insights gained from these practices could inform more tailored strategies, fostering greater environmental and socio-economic benefits across the board.

