

# **FEASIBILITY STUDY**

## **FOR PULA AIRPORT PILOT ACTION**

<b>Project acronym</b>	ADRIGREEN
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## I. EXECUTIVE SUMMARY

According to the application form of the ADRIGREEN project, Pula Airport should implement its pilot action covering one of the four main pilot action goals identified:

- Adoption of smart solutions to improve waste and water management and to reduce energy consumption in small-medium regional Airports.

The main deliverables of pilot action implementation should be a Feasibility study of implemented action as well as the testing report of implemented action, which will be a basis for further project steps, especially in conducting a Capitalisation manual on identified and tested solutions within ADRIGREEN projects.

Therefore, this document should evaluate pilot action implemented with a clear conclusion regarding its feasibility and transferability to other regions or airports, contributing to the project transnational approach conclusion which shall be summarised in the Capitalisation manual.

Testing results of implemented pilot action in Pula Airport have demonstrated its advantages from a process optimisation point of view as well as from feasibility (cost-effectiveness) and environmental perspective.

In addition, Pula Airport has presented a pilot action implementation plan covering all implementation process phases, from appointing project team, through identifying risks and risk mitigation procedures, conducting public procurement process and, in the end, implementation of equipment and monitoring of its performance.

The conclusion from this study represents recommendations to the Pula Airport management board as well as to other interested parties on how benefits from greenfield process thinking and optimisation may contribute to the company.

Also, to have adequate knowledge on impact and to ensure the durability of similar pilot actions implemented, the company must implement an environmental management system process in place, as an integrated tool for planning, implementation and monitoring of environmentally friendly activities.

## II. BACKGROUND OF THE PROJECT

Green and intermodal solutions for Adriatic ports and airports - ADRIGREEN is a project approved under the INTERREG V-A Italy Croatia CBC Programme 2014-2020. The programme is funded by the European Regional Development Fund under the European Territorial Cooperation objective during the programming period 2014-2020.

The managing body of the Cooperation Program is the Veneto Region, Italy. The national body of the Republic of Croatia coordinating the implementation of the joint programme with other participating countries is the Ministry of Regional Development and European Union funds.

The project has started in January 2019 and is expected to end by January 2022. The total budget approved for the project amounts to 2.104.217,00 EUR, 85% of which is co-financed through the ERDF fund (European Regional Development Fund). The project is implemented by 9 project partners.

### **Project description:**

One of the main problems that characterize the Adriatic coastal area is the imbalance in the development of infrastructures and modes of transport, caused by the low level of investments and insufficient approach to innovation. In Italy and Croatia, there are many maritime cities, which have to deal with a very high number of passengers, especially during the peak season. Even though road transportation is still predominant, the number of people that are reaching Adriatic cities by ferries and aeroplanes is significantly increasing year by year. However, most Adriatic ports and airports are suffering from a lack of integration with various modes of transportation, causing serious traffic congestion problems during the summer season.

The project aims to improve the integration of Adriatic ports and airports with other modes of transportation by testing several intermodal operational and technological solutions. By identifying and analysing already existing procedures, the project partners will test several intermodal practices to evaluate their adaptability and transferability into the Programme area.

Also, it is very important to create more environmental-friendly and less polluting transport between ports (cities) and airports by reducing CO<sub>2</sub> emissions. This can be achieved by purchasing electric vehicles for transport routes between ports and airports, or use in port/airport premises.

### **III. PROJECT OBJECTIVES, PROJECT APPROACH, COOPERATION NEEDED**

#### **Project objectives**

A low level of integration among different modes of transportation and insufficient investments in sustainable and low-carbon transportation technologies are characterizing several regions in the Adriatic area. The Croatian and Italian Adriatic coasts are rich in touristic destinations, which are reached by millions of tourists every year. Even though road transportation is still predominant, the number of tourists that are reaching Adriatic towns and cities by ferries and aeroplanes is significantly increasing. Unfortunately, most Adriatic ports and airports are suffering from a lack of connections with other modes of transportation, causing serious traffic congestions problems, especially during the summer seasons. In addition, the majority of ports and airports facilities are lagging behind the EU average when it comes to sustainable environmental performances.

The main objective of the ADRIGREEN project is to improve the integration of Croatian and Italian ports and airports with other modes of transportation in order to enhance the processing of passengers during the summer seasons and to improve the environmental performances of the Adriatic maritime and aviation systems.

In order to do that, the project will implement a set of structured activities based on a transnational and cooperative approach. The main idea is to identify and analyse a number of existing operational and technological solutions that can be easily transferred and adapted by involved ports and airports. The partners are not interested in inventing new solutions as there are plenty of successful models and schemes implemented in other parts of the world that can be replicable also in the Programme area. Once the solutions have been identified and analysed, the project partner will test the operational and technological models on their facilities so as to improve intermodal connections and to put in practice new schemes for the sustainable management of ports and airports. The objective of the testing phase will be to demonstrate the feasibility, effectiveness and replicability of the identified solutions. The last but not least intention of the project is to disseminate the results of tested solutions so as to explain also to other ports and airports how the operational procedures and technological innovation can be successfully transferred and used.

These objectives will be reached by producing several outputs:

- International investigation on best solutions to be transferred on Adriatic coasts;
- Environmental assessments of involved ports and airports;
- Joint Actions Plans: intermodal measures and green and sustainable actions to be implemented;
- Testing of innovative solutions in involved territories;
- Technical Manual on identified practices;
- Cross-Border Forum of Green and Intermodal Ports and Airports to present solutions, explain benefits and share recommendations for new strategies.

### **Project approach**

Considering that all involved territories are facing similar problems (low integration between different modes of transportation and low environmental performances), the project will implement all activities with a participative and transnational approach.

The first step will be to perform a detailed and in-depth identification and analysis of existing solutions for lowering airports/ports environmental impacts and for intermodal connections of ports/airports with other modes of transportation and to identify a set of possible schemes to be easily adopted in territories involved in the project. It means that existing solutions, identified around the EU/world (mainly North Europe), will be the starting point of the ADRIGREEN project. This activity will contribute to solving one of the main issues related to intermodal connections and low environmental performances: lack of knowledge regarding potential, smart and suitable solutions that could significantly improve the processing of passengers and decrease the environmental impact of transport activities in the Adriatic basin. The research will be followed by a deep environmental assessment and by the realisation of specific Action Plans where all identified measures will be described.

The second step will be to test the adaptability and efficiency of identified solutions on ports and airports of the ADRIGREEN project. Each partner already identified its major problems and a set of fields to be tackled by the testing phase: smart solutions to connect ports and airports to local public transportation systems; integrated timetabling and information for passengers; new services with public and private transportation services and reducing of energy consumption in airport/port facilities.

Each testing phase will strictly pursue a transnational perspective since the final aim is to test solutions, which could be easily adapted in each area involved in the project. The project will organize also 4 transnational trainings targeted to staff working on ports and airports (not only those involved as a partner) to improve their knowledge on technological solutions and procedures for both lowering the environmental impacts and planning new intermodal connections.

The final step of the project will be to disseminate as much as possible the tested solutions to all ports and airports located in the Adriatic area. The dissemination will be based on demonstrations of how the situation could be improved once the solutions are adapted.

### **Cooperation needed**

Considering the specific objectives of the project (identification of innovative solutions to be adopted in all Adriatic areas, testing of their replicability on ports/airports and spreading out of new tested technological solutions and procedures for improving intermodality and lowering environmental impacts), the cooperation among ports, airports, public authorities and research institutions is indispensable.

The project intends to support partners to test some innovative schemes to speed up the transit of passengers and to make their facilities environmentally friendly with the purpose to adapt and replicate them, not only within the partnership but also in other Adriatic regions not directly involved in the project. This is the main reason why the project goal cannot be efficiently reached at the local/regional level. The local single action can be of course meaningful, but the challenge of the project is to contribute to the creation of convincing conditions for making the entire Adriatic area better connected and its transport system more environmentally friendly. This challenge can be addressed only if existing practices, operational and technological solutions, and awareness-raising campaigns melt together and produce a capitalization effect.



The testing phase (WP4) is a very important part of this project and its implementation will be done with the highly transnational approach in order to give the possibility to each partner to benefit from results achieved by other partners. Following pilot actions are identified for the implementation:

- implementation of low-cost and smart solutions to better connect airports and ports with the local public transportation system, such as railways and public bus lines;
- implementation of integrated timetabling and information for passengers that shall continue their travel by other means of transportation;
- adoption of smart solutions to improve waste & water management and to reduce energy consumption in small-medium regional Airports;
- new protocols with public and private transportation providers to experiment with new services to speed up the process of passengers from/to touristic destinations which are not well-connected.

In WP4 the partners will have the possibility to identify some possible win-win solutions and to test concretely their efficiency. Each partner will consequently benefit from testing solutions carried out in other partners' areas. During the testing phase, the partners will have the opportunity to evaluate together the feasibility and effectiveness of identified solutions in order to know how to act in case of further investments to be done in this sector.

Through the transnational approach, the definition of both Joint Action Plans and of the Manual on identified solutions and practices will ensure the comparability of data and also the complementarity of the work.

#### IV. NEEDS ANALYSIS PULA AIRPORT

The Pula Airport experienced traffic growth as shown in the table below: During four years (2015 – 2019) Pula Airport recorded a constant increase of yearly passenger turnover with an average growth of 16% per year. The most significant renovation projects in the last decade were preparing for Schengen rules, reconstruction of the runway, and apron, construction of waste management facilities and improvement of nature protection measures, construction of new parking areas and objects.

Pula Airport is located in Istria County. The Istrian County is the westernmost Croatian county. The main characteristic of this region is well connected with the rest of Croatia and Europe. Due to its connection with a wider European area, road development suitably covers all needs and contributes to a balanced development of the coastal area and the Istrian interior. Well-developed is the processing industry, with traditional agriculture, sea fishing and growing, construction and production of construction materials (lime, cement, brick, stone), trade and transport.

The region's economy is mostly based on agriculture and tourism. Therefore, the traffic in Pula airport is mostly international traffic, including various destinations worldwide, especially during the summer season.

The connectivity between the Airport and the rest of the County is of major interest from an environmental and industrial point of view. There are several routes (highways) between the Airport and the County major cities. This represents a significant infrastructural benefit, especially during the tourist season. Pula Airport is in close relation with Pula Port and they are also collaborating on a number of projects supported by EU funding.

As pointed out, the Pula Airport traffic growth in the years up to the year 2020 has introduced the airport to new environmental challenges, such as an increase in air pollutions and the integration of environmental protective measures.

There are other emerging environmental challenges that were identified in recent years. Such new challenges are mostly due to the increase in traffic and the introduction of new airport infrastructure.

In order to cope with new environmental challenges, Pula Airport has planned to increase the level of multimodality/intermodality and environmental performance at the airport through a number of dedicated projects. The internal communication and transport between operational units are representing organizational and environmental challenges. Such needs should be met with environmental-friendly solutions taking into account specifics of airport technology and operations.

The ADRIGREEN Project represents a unique opportunity for Pula Airport to continue its development toward an environmentally friendly airport. In addition, thanks to the project, the Airport will analyse and evaluate existing and future strategies, concepts and techniques to improve intermodal solutions. Pula Airport is especially interested in improving and integrating communication and transport between units, and in opportunities to implement new innovative technologies according to the latest environmental and sustainable development principles.

Consequently, Pula Airport pilot action includes purchasing electric vehicles and electrical chargers to be used in airside and landside, covering the following pilot action field:

adoption of smart solutions to improve wastewater management and to reduce energy consumption in small-medium regional Airports

The new solutions tested at the Airport will reduce airport air pollution and will better integrate airport systems. Gained experience and benchmark information will provide inputs for the future sustainable development of the whole region.

## V. SAFETY AND INDUSTRY REGULATIONS

The airports are highly regulated and standardised environments due to specifics of global international air transportation system. There are a number of international organizations, standards, regulations and agreements that regulate airport performance in any field. Beside the international regulations, all countries have their own national legislations dedicated to regulate air transportation in general and airports in specific. In addition, there are different industry standards form non-governmental organizations that are widely accepted as norms by government bodies.

In general, airport regulations can be divided in two major groups: airside and landside. The landside area is open to the public, while access to the airside area is tightly controlled. The airside area includes all parts of the airport around the aircraft, and the parts of the buildings that are accessible only to passengers and staff.

The most significant regulatory body is the International Civil Aviation Organization (ICAO), an UN specialized agency, which manages the administration and the governance of the Convention on International Civil Aviation (Chicago Convention). ICAO works within the Convention's UN Member States and industry groups to reach consensus on international civil aviation Standards and Recommended Practices (SARPs) and policies for civil aviation sector. These SARPs and policies are used by UN Member States to ensure that their local civil aviation operations and regulations conform to global norms.

For the EU Member States there is the European Union Aviation Safety Agency (EASA). The EASA is an agency of the EU with responsibility for civil aviation safety. Each State has its own Civil Aviation Agency (CAA) that is responsible to enforce international aviation regulations (ICAO SARPs and EU Directives) at national level. The CAA are regulated and appointed by national legislation and respective governments. CAA is responsible for safety performance of all national air transportation subjects, including airports of the particular state. From industry standards most significant are those issued by the International Air Transport Association (IATA). The IATA is the trade association for the world's airlines which significantly influence airport performance as standards of this organization are widely recognized and enforced by national civil aviation agencies.

Both technology systems and vehicles at the airport landside or airside need to follow the basic national regulations for the specific field, such as work safety bylaw commercial vehicle bylaws. Beside those there are some general airport standards that need to be followed at the airports, such as ICAO Annex 14 (airport infrastructure) and ICAO Annex 17 (airport security). For the airport airside there are additional safety regulations and standards that need to be followed. Those specific standards are based on ICAO Annex 14, and additionally defined by the CAA in form of national legislation such as Ordinance on airports, Ordinance on ground handling, and Ordinance on airport rescue and firefighting.

Equipment purchased within ADRIGREEN project is implemented in airport processes and put in use obeying all mentioned standards. Additionally, Pula Airport safety manager is continuously controlling processes from safety point of view with regular reporting process implemented.

## VI. DESCRIPTION OF PILOT ACTION IMPLEMENTED

Pula Airport pilot action implemented complies with third main pilot action field identified within the project: *“adoption of smart solutions to improve waste & water management and to reduce energy consumption in small-medium regional Airports”*; and is defined by the purchased equipment:

- electric chargers for vehicles on the airport landside,
- electric vehicle for airport handling operations.

According to the need's analysis performed, Pula Airport has identified the following fields for improvement in the landside and airside area:

- energy efficiency improvements within airport processes,
- cost-effective optimisation of business processes.

Purchase and implementation of the electric vehicle for aircrafts handling process and chargers for electrical vehicles will significantly lower CO<sub>2</sub> emission and it will reduce energy consumption in performing daily processes within Pula Airport premises since old fuel vehicles are fully replaced and put out of the function. Also, since these vehicles and equipment are used on both the landside and airside areas, it will be visible to the stakeholders and general public contributing to the airport greenfield policy and zero-emission strategy adopted within Pula Airport and presented to the public.

## VII. FINANCIAL AND ENVIROMENTAL ANALYSIS

### Financial analysis

Pula Airport has performed a financial analysis of equipment purchased and used. In conducting financial analysis following assumptions were taken into the consideration:

- purchase price of new chargers for electrical vehicles,
- purchase price of new vehicle and old (replaced vehicle),
- additional yearly maintenance expenses for electrical vehicles,
- additional yearly maintenance expenses for electrical chargers,
- the economic life usage period of chargers (15 years),
- the economic life usage period of electrical vehicles (8 years).

Other information:

- chargers Terra 54 for electric vehicles was purchased and put in use in June 2020.
- electric vehicle VET-17kN for aircraft handling process was purchased and put in use in June 2021.

## 1. CHARGERS FOR ELECTRICAL VEHICLES ANALYSIS

### FINANCIAL ANALYSIS OF CHARGERS FOR ELECTRICAL VEHICLES

Costs of annual maintenance	1.000,00 €
Parts (Periodical)	500,00 €

VALUE IN CONSTANT PRICES				
Year	Purchased price	Operating expenditures (annual, periodical maintenance ...)	Residual value	Net cash flow
0	2020	160.440,00 €		160.440,00 €
1	2021			1.000,00 €
2	2022			1.000,00 €
3	2023			1.000,00 €
4	2024			1.000,00 €
5	2025			1.500,00 €
6	2026			1.000,00 €
7	2027			1.000,00 €
8	2028			1.000,00 €
9	2029			1.000,00 €
10	2030			1.500,00 €
<b>SUM</b>		<b>160.440,00 €</b>	<b>11.000,00 €</b>	<b>- €</b>
				<b>171.440,00 €</b>

DISCOUNT VALUES (4%)				
Year	Purchased price	Operating expenditures (service, fuel, ...)	Residual value	Net cash flow
0	2020	160.440,00 €		160.440,00 €
1	2021			1.040,00 €
2	2022			924,56 €
3	2023			889,00 €
4	2024			854,80 €
5	2025			1.232,89 €
6	2026			790,31 €
7	2027			759,92 €
8	2028			730,69 €
9	2029			702,59 €
10	2030			1.013,35 €
<b>SUM</b>		<b>160.440,00 €</b>	<b>7.222,17 €</b>	<b>- €</b>
				<b>167.662,17 €</b>

According to financial analysis performed, chargers for electrical vehicle costs for period of 10 years are 167.662,17 EUR which makes it feasible and cost effective for the company.

## 2. ELECTRICAL VEHICLES FOR AIRCRAFT HANDLING ANALYSIS

### ELECTRICAL VEHICLES FOR AIRCRAFT HANDLING ANALYSIS

Battery change (after 5 years)	6.700,00 €
Annual services	1.000,00 €
Tyres (after 5 years)	1.300,00 €
Energy consumption	1.500,00 €

VALUE IN CONSTANT PRICES					
Year	Purchased price	Operating expenditures (annual, periodical maintenance ...)	Residual value	Net cash flow	
0	2021	36.700,00 €		36.700,00 €	
1	2022		2.500,00 €	2.500,00 €	
2	2023		2.500,00 €	2.500,00 €	
3	2024		2.500,00 €	2.500,00 €	
4	2025		2.500,00 €	2.500,00 €	
5	2026		10.500,00 €	10.500,00 €	
6	2027		2.500,00 €	2.500,00 €	
7	2028		2.500,00 €	2.500,00 €	
8	2029		2.500,00 €	2.500,00 €	
9	2030		2.500,00 €	2.500,00 €	
10	2031		10.500,00 €	10.500,00 €	
SUM		36.700,00 €	41.000,00 €	- €	77.700,00 €

DISCOUNT VALUES (4%)					
Year	Purchased price	Operating expenditures (service, fuel, ...)	Residual value	Net cash flow	
0	2021	36.700,00 €		36.700,00 €	
1	2022		2.600,00 €	2.600,00 €	
2	2023		2.311,39 €	2.311,39 €	
3	2024		2.222,49 €	2.222,49 €	
4	2025		2.137,01 €	2.137,01 €	
5	2026		8.630,23 €	8.630,23 €	
6	2027		1.975,79 €	1.975,79 €	
7	2028		1.899,79 €	1.899,79 €	
8	2029		1.826,73 €	1.826,73 €	
9	2029		1.756,47 €	1.756,47 €	
10	2030		7.093,42 €	7.093,42 €	
SUM		36.700,00 €	23.603,43 €	- €	60.303,43 €

According to financial analysis performed, electrical vehicle costs for period of 10 years are 60.303,43 EUR which makes it feasible and cost effective for the company.



## **Environmental analysis**

At this stage, environmental analysis performed relates to the basic calculation of CO<sub>2</sub> emissions according to technical specifications of equipment purchased. In further steps of the pilot action testing, an evaluation grid will be developed in order to assess action performance and to show how the environment and population benefited from pilot actions. Also, it is important to specify that it is not yet fully investigated the impact of charging electrical vehicles on the environment since the current number of electrical vehicles in use and in circulation on the airport landside is not known to the airport staff.

Accordingly, listed below are technical specifications of pilot actions:

- old diesel vehicle CO<sub>2</sub> emission is 162 g / km, on a yearly basis, 10.000 km, it is 1.620.00 g. Electric vehicles emission factor was 234,81 g CO<sub>2</sub> eq/kWh in Croatia in 2017,
- numbers of electrical vehicles that are or will be charged in a certain period of time can't be estimated because it is a factor not relevant to the airport itself but to the number of electric vehicles used in the region both during the season and the rest of the year. Fossil fuel vehicle CO<sub>2</sub> emission is 162 g / km, on a yearly basis, 30.000 km, it is 4.860.00 g. Electric vehicles emission factor was 234,81 g CO<sub>2</sub> eq/kWh in Croatia in 2017.

## **VIII. RISK ANALYSIS**

### **Risk identification**

Pula Airport has participated on several project meetings in order to discuss project implementation and to coordinate project activities.

In addition, Pula Airport has performed qualitative risk analysis for different stages of feasibility study (FS) and Action plan implementation as follows:

- Preparation phase – includes steps that are to be fulfilled prior to developing of FS and Action plan

- Implementation phase – includes steps that are to be taken for purchase of equipment or software necessary for testing pilot action
- Testing phase – includes steps that are to be undertaken during the testing phase of the Action plan and producing FS.

Per each phase of the Action plan lifecycle, engaged partners will perform following activities:

- Risk identification – all types of risks that can occur needs to be identified and addressed,
- Risk assessment – based on prescribed methodology, each risk shall be measured and assessed based on the probability of occurrence and impact on the project objectives achievement,
- Corrective measures and mitigation measures – measures prescribed by engaged parties in order to mitigate risk to acceptable level. Acceptable levels of risks are moderate or below, other risk levels should be addressed by appropriate measures.

### Methodology for risk assessment

The qualitative risk analysis is based upon a combination of impact and probability and is evaluated according to the below risk matrix.

Impact/ Probability	I	II	III	IV	V
1	Low	Low	Low	Low	Moderate
2	Low	Low	Low	Moderate	High
3	Low	Moderate	Moderate	High	High
4	Low	Moderate	High	Very High	Very High
5	Moderate	High	High	Very High	Very High

**Table: Qualitative risk analysis per FS and Action plan phases**

PREPARATION PHASE						
Type of risk	Risk description / Effect on the project	Prob.	Impact	Risk	Measures implemented / mitigation measures	Status after measures on <b>28.10.2020.</b> / new deadlines
Delay in adopting of Programme guidelines	Delay in adopting Implementation manual could severely influence partner's capability for preparing procurement procedures which can result in mistakes during procurement process and financial corrections.	IV	IV	<b>Very high</b>	Even though there was a delay in prescribing Implementation manual, Pula Airport needs to follow National guidelines for procurement and establish adequate procurement plan in order to avoid possible financial corrections.	Pula Airport has adopted procurement plan and performed all procurements. <b>Risk is mitigated to low level.</b>
Replacement of key personnel	Due to the envisioned timeframe of the project, key personnel may change positions within the Company or leave Company which can result in delays in closing the project. Information level of the person taking over the position will inevitably be lower than for the one leaving the position.	III	III	Moderate	Project procedures needs to include clear directions on what measures are to be taken to secure information hand-over when a key person is replaced. This includes e.g. a hand-over meeting and a hand-over memorandum. The hand-over process will be supervised to ensure that it is thoroughly executed.	Internal project procedures identifying hand over procedures are adopted. Internal project team has been named. <b>Risk is mitigated to low level</b>

IMPLEMENTATION PHASE						
Type of risk	Risk description / Effect on the project	Prob.	Impact	Risk	Measures implemented / mitigation measures	Status after measures on <b>28.10.2020.</b> / new deadlines
Procurement plan not adopted	If all necessary procurements related to the project are not adopted and approved on time within the partners organization, equipment and related service may not be contracted and project objectives will not be met.	II	V	Moderate	Procurements related to the ADRIGREEN project should be adopted within the annual procurement plan of the Company in order to secure procurement funds.	Procurement plans have been adopted and all procurements have been finished and contracts signed. Also, all equipment is delivered and put in function in Pula Airport.  <b>Risk is mitigated to low level.</b>
Delays in public procurement publication	If public procurements are not published on time or delayed due to appeals, equipment will not be purchased on time to recover depreciation costs which may than be bared by the beneficiaries. Also, contracting of services related to performing testing actions may be delayed resulting in delay in achieving project objectives and outputs	III	IV	High	Pula Airport has appointed public procurement expert and publish all procurements.	Procurement plans have been adopted and all procurements have been finished and contracts signed. Also, all equipment is delivered and put in function in Pula Airport.  <b>Risk is mitigated to low level.</b>

TESTING PHASES						
Type of risk	Risk description / Effect on the project	Prob.	Impact	Risk	Measures implemented / mitigation measures	Status after measures on <b>12.2.2020.</b> / new deadlines
Not adequate actions implemented	If Pula Airport has implemented adequate actions in wrong manner, objectives and outputs of the project will not be reached.	III	III	Moderate	Pula Airport has purchased equipment according to specification and has put them in use. Testing results should confirm improvement in environmental impact solutions	N/A

Identified risks shall be monitored and evaluated through entire Action plan and FS lifecycle.

## IX. CONCLUSION

Pula Airport has implemented a process for monitoring and implementation of pilot action. The process consisted of the following:

- an identifying project team with clear responsibilities of each project team member,
- preparation of project implementation plan including pilot action implementation steps,
- identifying risks that can occur during pilot action implementation process with continuous monitoring and evaluation process,
- conducting timely public procurement processes for the purchase of needed equipment,
- implementing purchased equipment in practice and measuring their performance,
- establishing a monitoring system for environment analysis and process optimisation analysis for future benefits.

Furthermore, pilot action implemented is in compliance with the third main pilot action field identified within the project: *adoption of smart solutions to improve waste & water management and to reduce energy consumption in small-medium regional Airports*, and is divided into three main areas/types of vehicles purchased:

- electric vehicle for aircraft handling,
- chargers for electric vehicles.

Finally, according to testing results of implemented actions, the feasibility of each implemented action is demonstrated as well as their positive impact on the environment, which clearly demonstrates transferability and applicability of implemented pilot action to other airports and regions. Also, implemented pilot action is in compliance with aviation safety and security standards.

In further steps of the pilot action testing, an evaluation grid will be developed in order to assess action performance and to show how the environment and transit of passengers benefited from pilot actions.