Interreg
Danube Transnational Programme
EcoInn Danube

Recommendation for non-EU public utility company to partner with an EU R&D institution to deal with air pollution issue

This recommendation refers to strategic air mapping related to mobility and transport infrastructure and services and is directed to the new approach in using eco-innovative solutions.

Keywords: Partnership guidance ecoinnovation, air pollution, mobile lab, mapping

Aims of this recommendation

The Recommendation will help advocating in favour of conducting sustainable and environmentally friendly road construction for the future, intending to reduce and manage air pollution in the Romania – Serbia cross-border region in the benefit of health and life quality of the inhabitants.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions
- Audience of this report could be other Transport Public Utility Companies, local / regional / national authorities and R&D institution facing the same or similar challenges.

Background to this recommendation package

As the general objective of the EcoInn Danube project is to increase the cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of eco-technologies in the Danube Region, this recommendation represent useful suggestions and

Quick read

- This recommendation package is about collaboration between research and development institution and public utility company in the area of strategic air mapping.
- The recommendation package explains new approach and solution in the planning of mobility and transport infrastructure, using ecoinnovative technology.

proposals to the target audience on this case how to resolve specific problem through forms of knowledge transfer.

The situation that has led to this recommendation report has occurred since January 2018, when the RDA Banat was informed of the problem faced by one Public Utility Company (hereinafter: PUC) dealing with mobility and transport infrastructure and services on national level - maintenance, protection, usage, development and management of state roads. Due to the increase in transportation and industry sectors, they are directed to development of new transport infrastructure in line with EU policies and regulations, while at the same time they do not have adequate data, neither human nor technical capacity necessary to quantify the current status of air contamination.

In the long-standing cooperation we have with Romania, we were introduced to the fact that Romania, as EU member state, also faces similar problems, but that they have built institutional capacities which could help in resolving common challenges.

Summary of the parties

1. Transport PUC from Serbia established by the Government of the Republic of Serbia with the basic goal of performing the activities of state roads and highways – construction, maintenance, protection, usage, development and management of state roads and highways.
2. Specialized National Institute of Research & Development from Romania, governed by the Romanian government, with over 80 employees working in 3 main areas of competence: Chemistry and Environmental Protection, Physics and Nano-Materials and Renewable Energy, with competent workforce comprising of scientists acting in all related fields.

Summary of eco-solutions/knowledge/technology

Beside the understandable need for a developed transport system and infrastructure, an increased attention must also be raised towards the environmental issues. The main challenge to be addressed is the lack of mechanism to adequately tackle air pollution issues according to EU standards, policies and regulations. In order to property prepare and implement construction and reconstruction of roads, feasibility studies and environmental analyses are needed. Lack of data regarding air pollution level affects the quality of the above mentioned documents, and new technology (Mobile environmental laboratory operating on green energy, avoiding contaminating of monitored environment) will expand measurement capability, building on the knowledge and expertise of involved parties.

Summary of proposed collaboration / proposed partnership and knowledge transfer

After several consultative meetings on both sides, a direct contact was proposed, on which the possibilities of cooperation would be dissolved. Partnership was proposed in terms of exchange of methodology in air measurement practises, joint development of new technology unit and adoption of the most efficient innovative research models for air pollution mapping.

The background of the problem, situation or opportunity that has led to this report

Infrastructure development and increased mobility will negatively impact the environment due to increase in air pollution generated by vehicles and represented by chemical emissions like gases (CO, NOx, SO2, O3, etc.) and carbon based particulate matter enriched with heavy metals (PM10 and PM2.5). To address environmental concerns there is a need for data and processed information provided by specialized laboratories connected to the EU R&D infrastructure.

The stakeholder is Public Utility Company from Serbia in the area of mobility and transport infrastructure and services and approach us in the area of eco-innovation for help in acquiring a technology in a specific area of their field.

Partner is specialized R&D institution from Romania with valuable experience in addressing the problems related to air quality and this experience could contribute to filling this lack of data by sharing experience on a legal, measurement and management level.

Both partner countries support 2008/50/EC Directive on ambient air quality and cleaner air for Europe (CAFÉ), and this partnership will allow creating a conditions for air pollution measuring methods in the partner countries in line with CEFE. With regard to the specific focus on the research on traffic as a polluting factor, the recommendation will help advocating in favour of conducting sustainable and environmentally friendly road construction for the future.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

Partnership brings together the knowledge and expertise of partner environmental R&D, and knowledge and expertise of stakeholder in transportation control, planning and development to generate a scientific set of solutions in order to mitigate the environmental impact of growing transportation activity between the two regions.

A new mobile environmental laboratory will use state-of-the-art equipment to detect and quantify air quality on both sides of the border. The monitored parameters will go beyond the current list of only 4 parameters monitored for example by the Romanian EPA (SO2, NOx, CO, PM10) and will include also information on O3, PM10 and PM2.5, which are the most harmful PM10 components. The lab will be mobile and have the capability to circle the area, while the readings of lab will be connected to EU online air-index maps. High performance new technology will be used for the measurements of environmental air pollution and will help advocating in favour of sustainable and environmentally friendly road construction plans for the future. Mobile lab will consist of following parts:

- Utility vehicle
- Energy supply for measuring equipment – 2 x 5 kWh electric energy storage banks with 3kW peak power inverter + charger
- High Efficiency Heating and Cooling unit for equipment with dedicated solar PV power + gas calibration tanks + insulated and secured utility trailer
- Laptop + 360 degree HD photo and video camera
- Particulate matter Analyser for PM10, PM2.5, Total Particulate (PM), measured at the same time.
- Continuous Analyzer Sulphur dioxide (SO2)
- Continuous Analyser Nitrogen Oxides (NO, NO2, NOx)
- Continuous analyser for carbon monoxide (CO)
- Continuous Analyser for ozone (O3)
- Continuous analyser of volatile organic compounds
- Weather Station for measuring temperature, humidity and pressure
- Calibration unit
- Hydrogen Generator for VOC analyser
- Cylinder with NO, CO, SO2 mixture
- Cylinder with propane mixture in nitrogen
- Cylinder with Sinteyc Air de 10 L
- Pressure regulator tow stages brass
- Pressure regulator two stages SS
- Probe sampling of ambient air analysers
- 19" Rack for installation in a Container and the dilution unit – 2 rack per each part of equipment
- Data logger IOX
- Software visualization for IOX datalogger / IOVIS from imission analyzers

Summary of status of knowledge transfer

During the permanent contact with stakeholder, Serbian transport utility company expressed interest in technology which will enable them to obtain valid data on air pollution. After initial discussions via telephone and e-mail and several consultative meetings with stakeholder and partner, the first joint meeting was organized in RDA Banat premises in January 2018, when the general issue was debated. Both sides agreed that the best way to solve the common cross-border challenges and problems would be formalized partnership and securing external sources of funding for proposed activities. In that sense, RDA Banat proposed development of project idea within cross-border cooperation programme Romania – Serbia and offered help in preparing the application. Following a brainstorm session, both partners conceived and agreed on the project's title and acronym – AIRPOL. Also, the geographical coverage of the project is defined and the main activities have been sketched (traffic assessment, noise and air data collection, noise and air pollution mapping and measurement, action and strategic planning, capacity building activities). In light of its extensive experience in managing research contracts, the Romanian partner was appointed Lead beneficiary. During the February and March 2018, several meetings took place between the partners with the purpose of jointly developing the project design, when discussions were focused on project objectives, activities, documents needed for the submission and deadlines. Both partners evaluated their resources (equipment and personnel) and the project team was decided, considering the tasks and the competencies of the available personnel. Discussions on the outputs of the project were carried, in correlation with the objectives of the Programme and the Application were completed during the months of April 2018. Partnership is formalized in form of Partnership Declarations by both side on 20th of April, and application was submitted on the April 24th 2018.

Project application passed administrative and eligibility check and qualify for the next step of the evaluation, with good chances for success.

Summary of recommendations

Although partnership brings together experts in different areas of specialization from complementary fields, interested parties have similar expectation when they use the recommendation - to find solution for significant common environmental challenges due to traffic increase. Public Utility Company expect to obtain data necessary for planning and development of mobility and transport infrastructure in the future, according to EU regulations and directives.

R&D institution expect to develop new institutional capacity in the field of environmental protection, expand its in-situ measurement capability to become mobile and to employ the highly specialized human capacity to become a full service provider to public administration and governmental institutions acting in the field of environmental protection

List of recommendations

- Recommend establishing formal partnership between interested parties
- Recommend signing partnership declaration – annex to recommendation
- Recommend developing a joint project application as a means of securing funds for eco-technology
- Recommend potential supplier of eco-technology
- Recommend involvement of RDA Banat in formulating project application, as institution with valuable experience in project management
- Recommend and provide financial construction of the project
- Recommend and provide support in elaboration of project proposal
- Recommend development of Joint cross border strategies regarding noise and air pollution

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About the EcoInn Danube project

The objective of the EcoInn Danube project is to increase the cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of eco-technologies in the Danube Region.

www.interreg-danube.eu/approved-projects/ecoinn-danube

Conclusions

The recommendation has the potential to achieve a much wider impact in relation to partners directly involved in the recommendation. With a mobile laboratory and obtaining reliable information regarding the contamination in the air deriving mainly from transportation activities, but also from industrial and activities of populations, it would contribute to the improvement of quality standards and development of sustainable and environmentally friendly transport infrastructure, complying with EU environmental legislation and sustainability principles, and at the same time facilitating experience and know-how transfer between interested parties and partner countries and promoting professional co-operation in the field of air pollution management, and environmental management generally. AIRPOL brings a scientific approach and offers new solutions to air pollution, by using tools and delivering services for a specific area, but with the possibility to extend the accessibility to all other interested regions or countries.

Date of recommendation package

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Author

RDA Banat, Serbia

About EcoInn Danube recommendation packages

Recommendations in the context of the EcoInn Danube project are useful suggestions and proposals on how to bring eco-solutions into commercial value, particularly through forms of knowledge transfer.

Recommendation packages relate to specific eco-solutions, specific problems or specific areas within technology transfer.

Partnership guidance recommendations aim to aid successful interaction between 2 or more specific demand and supply side stakeholders.

Pitch recommendations aim to aid successful knowledge transfer and/or commercialisation for a type of stakeholder.

Events, consultations and interactions recommendations aim to aid successful eco-knowledge transfer by focusing on a given issue, area or topic related to knowledge transfer.