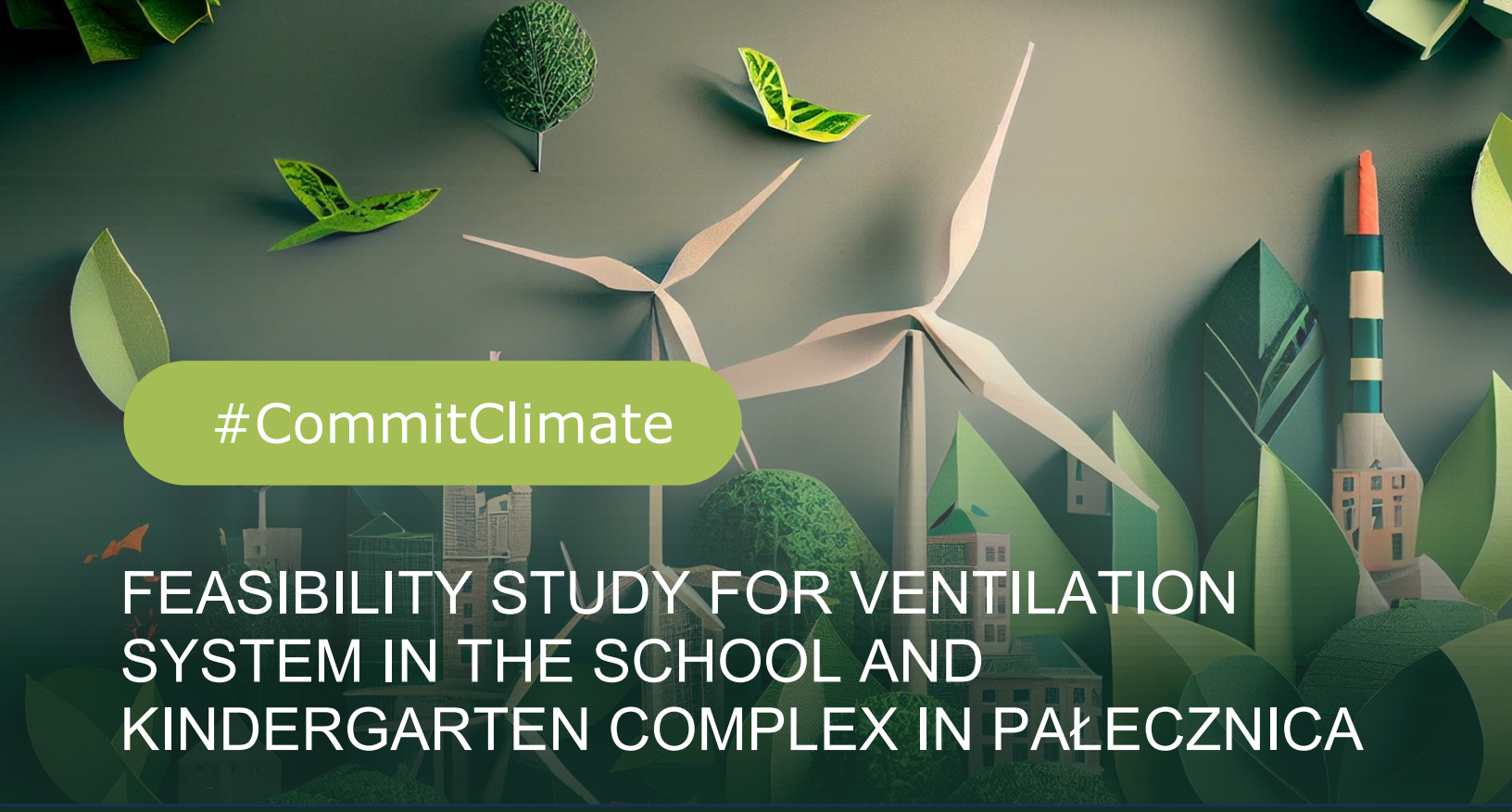

#CommitClimate

FEASIBILITY STUDY FOR VENTILATION SYSTEM IN THE SCHOOL AND KINDERGARTEN COMPLEX IN PAŁECZNICA

Implementation site

Pałecznica Municipality (Poland)

Target sector

Public buildings

Goal

Energy efficiency improvement

case study

Municipality name:
Pałecznica

School and Kindergarten Complex in Pałecznica (PL)

Project objectives

Overview:
The feasibility study with elements of the functional and utility programme for the supply and exhaust ventilation system in the building of the School and Kindergarten Complex in Pałecznica is a study that intends to help investors make decisions regarding the possibility and feasibility of an investment consisting of replacing the existing gravity ventilation system with a mechanical system (supply and exhaust).

The study was carried out for the implementation of the CommitClimate project - " Towards energy transition and climate neutrality in the Baltic Sea Region municipalities", co-financed by the EU under the Interreg Baltic Sea Region 2021-2027.

This feasibility study reflects the author´s view and the programme authorities are not liable for any use that may be made of the information contained therein.

Key Insights:

Inefficient and ineffective gravity ventilation systems in schools may contribute to:

- deterioration of the health and comfort of students and teaching staff,
- a decline in the quality of the educational process,
- difficulties in maintaining the building in proper technical condition,
- violations of applicable technical and sanitary regulations.

In light of the above, it was decided that a feasibility and purpose analysis should be conducted for the investment project involving the replacement of the existing gravity ventilation system with a mechanical ventilation system in the school building.

Implementation

Technical Solutions:

The planned investment will involve the installation of a mechanical ventilation system along with related construction works outside the building and in selected rooms of the School and Kindergarten Complex in Pałecznica. The task will particularly include construction works and installation of ventilation, sanitary, electrical, and automation systems. Technical details of the solution are described in functional and utility programme, which in case of public procurement may be used as technical documentation of the investment.

Financing

From an economic perspective, the justification of the project was assessed both with and without external funding. In the case of the Municipality of Pałecznica, the availability of co-financing for the net cost of construction works makes the investment profitable, depending on the energy savings achieved and on the PV energy consumption level. Increase of energy costs and PV use decrease the return period i.e. if 80% energy comes from PV and co-financing is 75% the return of investment is below 4 years.

At this stage, it is not possible to estimate the monetary value of elements such as improved air quality leading to better health of students and staff, reduced sick leave, or compliance with sanitary regulations (e.g. post-COVID-19), although these are undoubtedly values of fundamental importance for an educational facility.

Result and Benefits

Expected results

As a result of the investment, the following key outcomes are expected:

1. **Health-related effects:** improved sanitary and health conditions, better air quality, and increased user comfort.
2. **Energy-related effects:** reduced energy consumption, emission reduction, improved energy balance of the building, and a positive impact on the climate.
3. **Economic effects:** lower costs, higher technical value, and budget savings.
4. **Social effects:** climate education, a model of good practice, and improved image of the institution.
5. **Administrative effects:** modern management, automation, planned maintenance, compliance with regulations, and avoidance of penalties.

European Experience:

The solution proposed for the analysed institution may also be successfully implemented in other countries of the Baltic Sea region, particularly in the context of:

- common regulations in force within the European Union,
- similar climatic conditions,
- availability of comparable funding sources,
- increasing importance of healthy and safe conditions in educational environments.

International cooperation may lead to preparation of pilot project in a field of comparison of implementation effects in 2–3 countries, creation of a joint platform for school administrators focusing on indoor air quality or joint development of standardized investment models for school units.

Recommendations:

- Develop national guidelines and financial tools tailored to school buildings.
- Encourage buildigs users for more energy efficiency actions (habits build).
- Highlight of positive effects: health, energy, economic, social and administrative areas.

Marcin Łojek
lojek.m@palecznica.pl
41 384 80 37