

D.T3.5.3 EVALUATION REPORT OF PILOT ACTION

Slovenia

Version 1
09 2019





1. General information about the pilot

1.1. Aim of pilot activities

Pilot programme is a small-scale version of a larger project. It allows testing proposed approach, identifying problems and preventing them from escalating. When identified, problematic issues might be solved, and the programme adjusted. Pilots reveal unforeseen challenges and help the staff involved in the programme to get prepared for a full-scale implementation. The aim of evaluation of pilot programmes is to verify whether objectives defined for the pilot phase are met, and to propose recommendations how to improve the programme before launching it in a full-scale. It is done by reviewing activities performed and evaluating whether they allowed for achieving the objectives.

The aim of FEEDSCHOOLS pilot activities was to test and evaluate the FEEDSCHOOLS toolkit: ERE App, Financial App, and the database of best NZEB practices. When validated, apps should allow non-experts for development of an energy renovation plan for school. ERE App should provide qualitative data on current energy performance of a building and compare it with other buildings in a given country in terms of energy consumption. It should be followed by a list of improvement measures that would allow for reaching the nZEB standard. Data on energy savings, emissions avoided, financial costs, and carbon footprint of a renovation should be also available. Using these results, the Financial App should suggest an optimal financing plan, i.e. combination of using own funds, credit/loans, subsidies, ESCO and PPP. Database of best practices should allow for getting more information about innovative solutions that have been successfully implemented in other public building in the Central Europe region.

Pilots have taken place in 6 countries: Croatia, Czech Republic, Hungary, Italy, Poland, and Slovenia. 8 schools from each country have been involved. In each school three different functional zones were targeted: classroom, sport hall, and canteen. Pilot consisted of the following activities:

1. Data collection - preliminary data, such as historical energy consumption and building technical schemes, have been collected.
2. On site energy audits - pilot schools have been visited and energy audits have been conducted. As a result, reports describing building energy performance have been drafted.
3. Improvement options - based on on-site energy audits results, energy efficiency measures have been proposed so that nZEB standard could be reached.
4. Optimal financing schemes - using the Financial App, plans of financing the renovation measures have been proposed.
5. Carbon footprint of restoration - using the ERE App, the improvement of building carbon footprint has been calculated.
6. Open lessons for behavioural change of school staff and students - in each school participating in the project lessons activating energy saving behaviour have been organised. Lessons targeted students, teachers and technical staff.
7. Improvement and validation of the apps - results of the ERE App and Financial App have been compared with results of on-site audits, so that Apps could be improved.



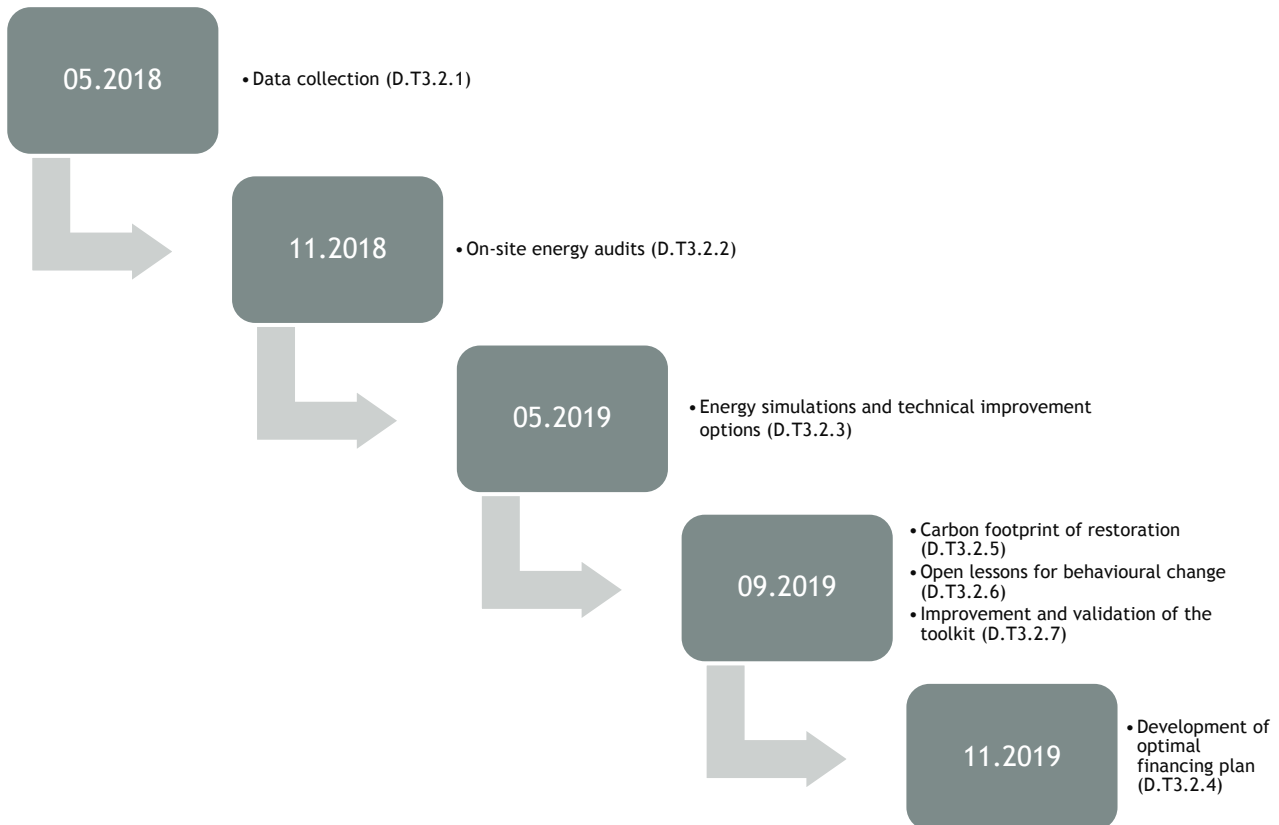
The aim of activities 1-3 was to collect on-site data and perform calculation using traditional energy auditing approach usually used in a given country. Results got in this process have been considered then as a reference level for apps validation and improvement within activity 7. When developed, ERE App was used for development of financing plan (activity 4) and carbon footprint calculations (activity 5).

1.2. Schools selected for pilot activities

School ID	Building name	Street, number, city and postcode
SI_01	Tinje	Veliko Tinje 29, 2316 Zg. Ložnica
SI_02	Srednja šola Sl. Bistrica	Ul. Dr. Jožeta Pučnika 21, 2310 Slov. Bistrica
SI_03	Šmartno na Pohorju	Šmartno na Pohorju 24a, 2315 Šmartno na Pohorju
SI_04	KEBELJ	Kebelj 17b, 2317 Oplotnica
SI_05	2. OŠ	Šolska ulica 5, 2310 Slov. Bistrica
SI_06	Laporje	Laporje 31, 2318 Laporje
SI_07	Črešnjevec	Črešnjevec 47, 2310 Slov. Bistrica
SI_08	Sp. Polskava	Sp. Polskava 240, 2331 Pragersko



1.3. Pilot timeline



1.4. Partners involved in Pilots

- > **Local Energy Agency Spodnje Podravje**
 - Country: Slovenia
 - Partner type: technical
 - Partner description: Local Energy Agency Spodnje Podravje is energy manager for the Spodnje Podravje municipalities. Main activities of the agency are: developing local energy concepts, energy management, energy bookkeeping, energy auditing of the building and lighting systems, developing the investment documentation for energy renovation supervision of the energy renovation of the public buildings and energy certification.
 - Main role and duties in Pilots: technical partner, responsible for audit conducting



> **Municipality of Slovenska Bistrica**

- Country: Slovenia
- Partner type: institutional
- Partner description: The municipality of Slovenska Bistrica is one of the largest in Slovenia. It is 260 km² in size and it has a population of about 25,000. Local energy plans aim at decreasing energy consumption in public buildings of 20 % till 2020, and acceleration of renewables (RES) at local level.
- Main role and duties in Pilots: institutional partner, coordinating collaboration with schools.

2. Pilot evaluation

2.1. Pilot implementation

- 1) Which part(s) of the pilot did go well? Which could be improved?

In general, all parts of the pilot did go well. The only part where we struggled a bit is the part for technical improvement options to reach the nZEB standard. As in other countries, in Slovenia there is also the strategy for nZEB buildings that foresees the construction and renovation into nZEB standard after 31. December. 2018 for all public buildings. Although, the requirements are clear, we still lack on technical guidelines for nZEB energy modelling. However, within this pilot we gained precious experiences in nZEB and the knowledge gained will definitely be used in the further work.

- 2) What advantages and disadvantages do you find of FEEDCHOOLS approach, compared to other energy efficiency programmes?

The FEEDSCHOOLS approach of the energy auditing itself is the same as we are already using. An advantage is definitely the “trainings” and open lessons carried out for schools, since they had a high awareness raising value.

The toolkit for school managers for assessing the actual energy situation of the building and the possible energy efficiency measures and corresponding savings can provide them with an oversight of the situation and possibilities to start thinking and give inspiration for future actions.

- 3) Which of the seven pilot activities do you consider as the strongest? Which one the weakest?

The approach of energy auditing that contained the on-site visits of energy auditors from other countries and the interregional revision of energy audit reports provided an added value to the carried out energy audits. It was a great possibility to compare the national approaches with the approaches of other counties and learn in that way. This was a Strength point of the pilot action for the Energy Auditor. For the School staff and students, a strength point was definitely the open lessons conducted at each involved school. Behavioural change and awareness raising results in energy savings and therefore has a great impact on overall efficiency of a building.

In our opinion a weak point is the development of the optimal financial plan for energy renovation since in the past it has been proved that there is no one-fits-all solution in this regard. In Slovenia there is more than one policy instrument that supports energy efficiency measures and all aspects from technical and economical point of view have to be considered. In the past it has been shown that the optimal option in one case is not necessary the optimal in another one, even if the buildings are similar in their technical aspects.



4) What were main difficulties with the pilot implementation?

The main difficulty in our opinion is to provide a pilot approach that fits into more (all) countries and I think this was managed successfully.

With the pilot implementation itself there were no difficulties that could not be overcome. Maybe one of the main challenges was to provide a NZEB renovation option, since this is not the practice in Slovenia yet. However, the outcome of this experience is the gained knowledge in nZEB modelling. One other challenge was also the revision of the work (energy audits) of other participating countries which required knowledge on energy auditing in other countries which is in general similar but not quite the same.

5) Are there any elements of the pilot that in your opinion should be avoided in the future?

All elements of the pilot have their purpose and represents a piece of the whole that makes the FEEDSCHOOL approach unique. Therefore, we would not avoid any element.

The only aspect we could not fulfil was the division of the building at three functional zones (classrooms, sport hall and canteen). Usually they are the part of one building and the division brings no benefits or provides additional useful information for the audit. When implementing energy efficiency measures, the building is to be considered as a whole. As for example, you do not insulate only a part of the external walls. The division is only feasible when the functional zones are representing different buildings - but in that case it is already in practice to investigate them separately. In the future we would suggest to avoid this division.

2.2. Relevance

1) Did the pilot action test procedures, instruments and ways of co-operation, that may become part of standard tools and instruments for energy performance improvements of school buildings towards nZEB standard in Central Europe? Which ones in particular?

The pilot action involved many procedures of co-operation, among them: common templates for all elements of the pilot action, transnational peer review (transnational cooperation in energy auditing), transnational revision of the energy audits, etc. However, do not know if these procedures are in discussion for nZEB building standardisation in Central Europe.

2) Did the pilot action have a clear European dimension in terms of its implementation?

Yes, in terms of transnational cooperation and knowledge transfer point of view.

3) What was the local stakeholder engagement?

The stakeholders have been involved in almost all phases of the pilot implementation. They have been involved in the implementation of energy auditing - on spot audits as well as in the trainings (open lessons) conducted for school staff and students.

4) Did the pilot action reflect societal, scientific and/or economic needs, calling for an integrative, coordinated approach? Which ones in particular?

The open lessons are linked to the need for awareness raising among young people about the importance of increased energy efficiency and the use of renewable sources and the role each individual play in order to support the ambitious energy and climate goals of the European Union.



2.3. Transnational added value

- 1) Did the pilot action address an issue that clearly profits from a transnational approach, as compared to national actions?

As already described, in Slovenia we are still waiting for detailed instructions of how to plan renovations and new constructions into the nZEB standard and therefore it was beneficial for our organisation to learn from and share experiences with other participating countries.

- 2) Did the pilot action contribute to avoiding duplication at the national, and creating critical mass at the Central European level?

With the pilot action, the pilot buildings have obtained an energy audit which means that if they decide for an energy renovation there will not be the need to do the audit again which means that this part will not be duplicated.

- 3) Did the pilot action explore and/or utilize supranational synergies and complementarities? Which ones in particular?

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2.4. Impact

- 1) Did the pilot action impact on societal, economic, scientific, technological and/or political drivers of importance to the goals and objectives of the Energy Performance of Buildings Directive? Which ones in particular?

The pilot action refers and supports the ambitious EU commitments to improve energy efficiency of buildings, increase the proportion of renewable energy and to reduce the GHG emissions.

In Slovenia nZEB is still not a common practice even as it already should be. In this regard, all actions that support the transformation of buildings into nZEB are important steps on the pathway to achieve the goals of a highly energy-efficient and decarbonised building stock and to ensure that long-term renovation strategies bring the necessary progress to transform existing buildings into near-zero-energy buildings.

- 2) Did the pilot action establish structures or processes that facilitate future collaboration of partners in Central Europe? Which ones in particular?

The international peer review and the revision of energy audit report is an excellent way of cooperation that gives the project transnational added value and could be a good practice for future projects in the Central Europe.

With the tools developed within the pilot action (ERE App and Financial App), school managers will have the opportunity to make an initial assessment of the state of their building and obtain information on what savings can be achieved and information on possible sources of funding. This initial information will help them to decide on further steps. This approach could be easily transferred to other type of buildings (not only school buildings) and become a common practice of tackling energy renovations.

- 3) Can the improvement options recommended in the pilot action be conducted with the current capacities and resources of the local stakeholders?

In Slovenia there are several options for financing of the proposed measures in the pilot. The owner of the buildings (Municipality of Bistrica - 7 buildings; and Ministry of Education, Science and Sport - 1 building) have the option:

- to take a loan (Bank, Eco Fund),



- *A subsidy from the Eco Fund (to implement one or more of the proposed measures),*
- *A subsidy from Cohesion fund - for a comprehensive renovation,*
- *A combination of a subsidy and a loan,*
- *A public-private-partnership to implement the energy renovation.*

So as far as financing of improvement measures is concerned there are many options in Slovenia. But in order to implement the improvement measures there are usually required implementation (design) plans. Either are they a legal requirement (building permits) or they are requested by the co-financer. This is a part that usually cannot be conducted by the stakeholders themselves and external support is needed here.

4) *Has the pilot action delivered tangible outcomes for local stakeholders? Which ones in particular?*

With the pilot action the main stakeholders of the project (School managing staff) received an overview of the existing situation of the School buildings. With the carried out energy audits they received also a set of measures for energy improvement and an overview of possible financing options.

5) *Are the improvement options recommended in the pilot action likely to deliver outcomes in a relatively short term (< 2 years)?*

Some improvement options are going to be implemented and they will deliver outcomes in a relatively short term.

3. Summary

Please shortly summarize your opinion about the pilot. Please focus on strengths, weaknesses, and critical aspects in particular.

The pilot within the FEEDSCHOOLS project a great set of actions which combine international cooperation and knowledge transfer in order to provide practical tools for school building owners and school managers.

As our organisation is expert in the field of energy auditing we analysed the online app (ERE App) not only from the practical point of view but also its accuracy and usefulness for more “serious” calculations. We can say that in its accuracy and user friendliness, the App is a great tool for School building owners and managers to make their initial calculations and decide on further steps. The main benefit of using this Apps is the increased awareness about the benefits of energy renovations since each user will be able to make the calculations for its own building. As an outcome we can expect more energy renovations in the future which will positively contribute to the goals of the EPBD. On other hand, energy renovations have also a positive impact on the local economy.